THE GARY PUBLIC SCHOOLS

COSTS

SCHOOL YEAR 1915–1916

By
FRANK P. BACHMAN
AND
RALPH BOWMAN

GENERAL EDUCATION BOARD
61 BROADWAY NEW YORK
1918

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The results of the study of the Gary Public Schools, undertaken on the invitation of the Superintendent and the Board of Education of Gary, will be published in eight parts, as follows:

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INTRODUCTION

The Gary Plan

In the last few years both laymen and professional educators have engaged in a lively controversy as to the merits and defects, advantages and disadvantages of what has come to be called the Gary idea or the Gary plan. The rapidly increasing literature bearing on the subject is, however, deficient in details and too often partisan in tone. The present study was undertaken by the General Education Board at the request of the Gary school authorities for the purpose of presenting an accurate and comprehensive account of the Gary schools in their significant aspects.

In the several volumes in which the main features of the Gary schools are separately considered, the reader will observe that, after presenting facts, each of the authors discusses or—in technical phrase—attempts to evaluate the Gary plan from the angle of his particular interest. Facts were gathered in a patient, painstaking, and objective fashion; and those who want facts, and facts only, will, it is believed, find them in the descriptive and statistical portions of the respective studies. But the successive volumes will discuss principles, as well as

state facts. That is, the authors will not only describe the Gary schools in the frankest manner, as they found them, but they will also endeavor to interpret them in the light of the large educational movement of which they are part. An educational conception may be sound or unsound; any particular effort to embody an educational conception may be adequate or inadequate, effective or ineffective. The public is interested in knowing whether the Gary schools as now conducted are efficient or inefficient; the public is also interested in knowing whether the plan as such is sound or unsound. The present study tries to do justice to both points.

What is the Gary plan?

Perhaps, in the first instance, the essential features of the Gary plan can be made clear, if, instead of trying to tell what the Gary plan is, we tell what it is not. Except for its recent origin and the unusual situation as respects its foreign population, Gary resembles many other industrial centers that are to be found throughout the country. Now, had Gary provided itself with the type of school commonly found in other small industrial American towns, we should find there half a dozen or more square brick "soap-box" buildings, each accommodating a dozen classes pursuing the usual book studies, a playground, with little or no equipment, perhaps a basement room for manual training, a laboratory, and a cooking room for the girls. Had Gary played safe, this is the sort of school and school equipment that it would now possess. Provided with this conventional school

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system, the town would have led a conventional school life—quiet, unoffending, and negatively happy—doing as many others do, doing it about as well as they do it and satisfied to do just that.

As contrasted with education of this meager type, the Gary plan is distinguished by two features, intimately connected with each other:

First—the enrichment and diversification of the curriculum;

Second—the administrative device that, for want of a better name, will be tentatively termed the duplicate school organization.

These two features must first be considered in general terms, if the reader is to understand the detailed description and discussion.

As to the curriculum and school activities. While the practice of education has in large part continued to follow traditional paths, the progressive literature of the subject has abounded in constructive suggestions of far-reaching practical significance. Social, political, and industrial changes have forced upon the school responsibilities formerly laid upon the home. Once the school had mainly to teach the elements of knowledge; now the school is charged with the physical, mental, and social training of the child. To meet these needs a changed and enriched curriculum, including community activities, facilities for recreation, shop work, and household arts, has been urged on the content side of school work; the transformation of school aims and discipline

on the basis of modern psychology, ethics, and social philosophy has been for similar reasons recommended on the side of attitude and method.

These things have been in the air. Every one of them has been tried and is being practised in some form or other, somewhere or other. In probably every large city in the country efforts have been made, especially in the more recent school plants, to develop some of the features above mentioned. There has been a distinct, unmistakable, and general trend toward making the school a place where children "live" as well as "learn." This movement did not originate at Gary; nor is Gary its only evidence. It is none the less true that perhaps nowhere else have the schools so deliberately and explicitly avowed this modern policy. The Gary schools are officially described as "work, study, and play" schools—schools, that is, that try to respond adequately to a many-sided responsibility; how far and with what success, the successive reports of the Gary survey will show.

It must not, however, be supposed that the enriched curriculum was applied in its present form at the outset or that it is equally well developed in all the Gary schools. Far from it. There has been a distinct and uneven process of development at Gary; sometimes, as subsequent chapters will show, such rapid and unstable development that our account may in certain respects be obsolete before it is printed. When the Emerson school was opened in 1909, the equipment in laboratories, shops, and museums, while doubtless superior to what

Representative of Poorer Residential Section

was offered by other towns of the Gary type, could have been matched by what was to be found in many of the better favored larger towns and cities at the same period. The gymnasium, for example, was not more than one third its present size; the industrial work was not unprecedented in kind or extent; the boys had woodwork, the girls cooking and sewing. But progress was rapid: painting and printing were added in 1911; the foundry, forge, and machine shop in 1913. The opportunities for girls were enlarged by the addition of the cafeteria in 1913. The auditorium reached its present extended use as recently as the school year 1913–14. The Froebel school, first occupied in the fall of 1912, started with facilities similar to those previously introduced piecemeal into the Emerson.

These facilities, covering in their development a period of years, represent the effort to create an elementary school more nearly adequate to the needs of modern urban life. The curriculum is enriched by various activities in the fields of industry, science, and recreation. Questions as to the efficiency with which these varied activities have been administered will be discussed by the various contributors to the present study. Meanwhile, it is perhaps only fair to point out that the modern movement calls not only for additions to, but eliminations from, the curriculum and for a critical attitude toward the products of classroom teaching. How far, on the academic side, the Gary schools reflect this aspect of the modern movement will also presently appear.

The administrative device—the "duplicate" organization, noted above as the second characteristic feature of the Gary plan—stands on a somewhat different footing, as the following considerations make plain.

Once more, Mr. Wirt was not the inventor of the intensive use of school buildings, though he was among the first—if not the very first—to perceive the purely educational advantage to which the situation could be turned. The rapidity with which American cities have grown has created a difficult problem for school administrators—the problem of providing space and instruction for children who increase in number faster than buildings are constructed. The problem has been handled in various ways. In one place, the regular school day has been shortened and two different sets of children attending at different hours have been taught daily in one building and by one group of teachers. Elsewhere, as in certain high schools, a complete double session has been conducted. The use of one set of schoolrooms for more than one set of children each day did not therefore originate at Gary.

Another point needs to be considered before we discuss the so-called duplicate feature of the Gary plan. In American colleges, subjects have commonly been taught by specialists, not by class teachers. The work is "departmentalized"—to use the technical term. There is a teacher of Latin, a teacher of mathematics, a teacher of physics, who together instruct every class—not a separate teacher of each class in all subjects. Latterly,

departmentalization has spread from the college into the high school, until nowadays well organized high schools and the upper grades of elementary schools are quite generally "departmentalized," i.e., organized with special teachers for the several subjects, rather than with one teacher for each grade.

Out of these two elements, Gary has evolved an administrative device, the so-called duplicate school, which, from the standpoint of its present educational significance, does indeed represent a definite innovation.

For the sake of clearness, it will be well to explain the theory of the duplicate school by a simplified imaginary example:

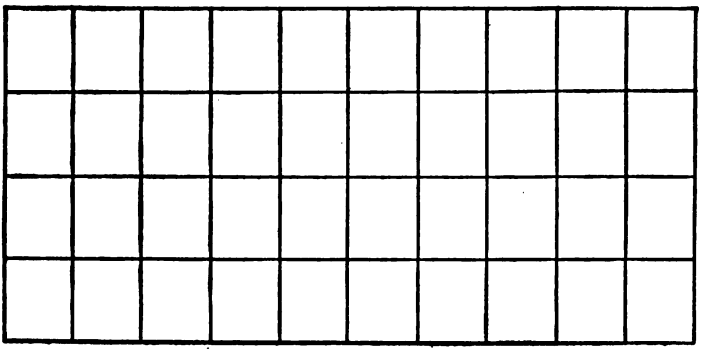
Let us suppose that elementary school facilities have to be provided for, say, 1,600 children. If each class is to contain a maximum of 40 children, a schoolhouse of 40 rooms would formerly have been built, with perhaps a few additional rooms, little used, for special activities; except during the recess (12 to 1:30) each recitation room would be in practically continuous use in the old-line subjects from 9 to 3:30, when school is adjourned till next morning. A school plant of this kind may be represented by Figure I, each square representing a schoolroom.

The "duplicate" school proposes a different solution. Instead of providing 40 classrooms for 40 classes, it requires 20 classrooms, capable of holding 800 children; and further, playgrounds, laboratories, shops, gardens, gymnasium, and auditorium, also capable of holding

800 children. If, now, 800 children use the classrooms while 800 are using the other facilities, morning and afternoon, the entire plant accommodates 1,600 pupils throughout the school day; and the curriculum is greatly enriched, since, without taking away anything from their classroom work, they are getting other branches also. A school thus equipped and organized may be represented

FIGURE I
REPRESENTS OLD-FASHIONED SCHOOLHOUSE

40 rooms for 40 classes, of 40 children each, i. e., facilities for the academic instruction of 1,600 children. A school yard and an extra room or two, little used, for special activities, are also usually found.

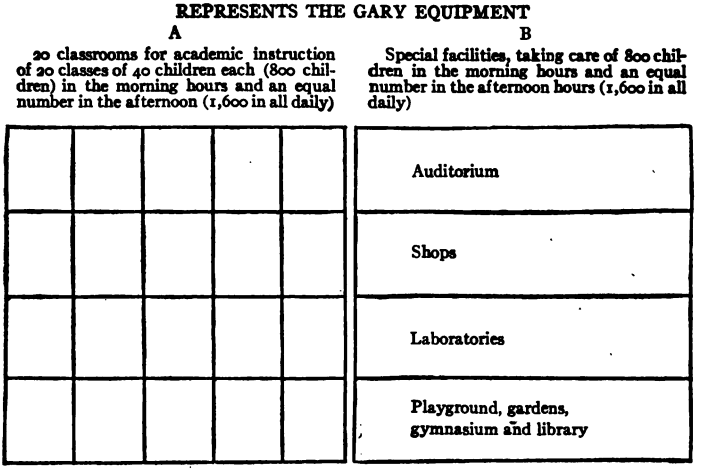


by Figure II, in which A represents 20 classes taking care of 40 children each (800 children), and B represents special facilities taking care of 800 children. As A and B are in simultaneous operation, 1,600 children are cared for.

This method of visualizing the "duplicate" school serves to correct a common misconception. The plan aims to intensify the use of schoolrooms; yet it would be

incorrect to say that 20 classrooms, instead of 40, as under the old plan, accommodate 1,600 children. For while the number of classrooms has been reduced from 40 to 20, special facilities of equal capacity have been added in the form of auditorium, shops, playground, etc. The 20 classrooms apparently saved

FIGURE II
REPRESENTS THE GARY EQUIPMENT



have been replaced by special facilities of one kind or another. The so-called duplicate organization and the longer school day make it possible to give larger facilities to twice as many children as the classrooms alone would accommodate. The duplicate school, as developed at Gary, is not therefore a device to relieve congestion or to reduce expense, but the natural result of efforts to provide a richer school life for all children.

The enriched curriculum and the duplicate organization support each other. The social situation requires a scheme of education fairly adequate to the entire scope of the child's activities and possibilities; this cannot be achieved without a longer school day and a more varied school equipment. The duplicate school endeavors to give the longer day, the richer curriculum, and the more varied activities with the lowest possible investment in, and the most intensive use of, the school plant. The so-called duplicate school is thus a single school with two different types of facilities in more or less constant and simultaneous operation, morning and afternoon.

Such is the Gary plan in conception. What about the execution? Is it realized at Gary? Does it work? What is involved as respects space, investment, etc., when ordinary classrooms are replaced by shops, playgrounds, and laboratories? Can a given equipment in the way of auditorium, shops, etc., handle precisely the same number of children accommodated in the classrooms without doing violence to their educational needs on the one hand, and without waste through temporary disuse of the special facilities, on the other? To what extent has Gary modified or reorganized on modern lines the treatment of the common classroom subjects? How efficient is instruction in the usual academic studies as well as in the newer or so-called modern subjects and activities? Is the plan economical in the sense that equal educational advantages cannot be procured by

Froebel School Building

any other scheme except at greater cost? These and other questions as to the execution of the Gary plan are, as far as data were obtainable, discussed in the separate volumes making up the present survey.

The concrete questions above mentioned do not, however, exhaust the educational values of a given school situation. From every school system there come imponderable products, bad as well as good. Aside from all else, many observers of the Gary schools report one such imponderable in the form of a spiritual something which can hardly be included in a study of administration and eludes the testing of classroom work. These observers have no way of knowing whether Gary school costs are high or low; whether the pupils spell and add as well as children do elsewhere; but, however these things may be, they usually describe the pupils as characterized by self-possession, resourcefulness, and happiness to an unusual degree. While different schools and indeed different parts of the same school vary in this respect, the members of the survey staff agree that, on the whole, there is a basis of fact for these observations. Gary is thus something more than a school organization characterized by the two main features above discussed.

The reason is not far to seek. Innovation is stimulating, just as conformity is deadening. Experiment is in this sense a thing wholesome in itself. Of course it must be held to strict accountability for results; and this study is the work of persons who, convinced of the necessity of educational progress, are at the same time

solicitous that the outcome be carefully observed. The fact that customary school procedure does not rest upon a scientific basis, does not willingly submit itself to thorough scrutiny, is no reason for exempting educational innovations from strict accountability. The very reverse is indeed true; for otherwise innovation may imperil or sacrifice essential educational values, without actually knowing whether or not it has achieved definite values of its own. Faith in a new program does not absolve the reformer from a watchful and critical attitude toward results. Moreover, if the innovator formulates his purposes in definite terms and measures his results in the light of his professed aims, the conservative cannot permanently escape the same process. Gary, like all other educational experiments, must be held accountable in this fashion. Subject however to such accountability, the breaking of the conventional school framework, the introduction of new subject matter or equipment, even administrative reorganization, at Gary as elsewhere, tend to favor a fresher, more vigorous interest and spirit. Defects will in the following pages be pointed out in the Gary schools—defects of organization, of administration, of instruction. But there is for the reasons just suggested something in the Gary schools over and above the Gary plan. Problems abound, as in every living and developing situation. But the problems are the problems of life, and, as such, are in the long run perhaps more hopeful than the relatively smooth functioning of a stationary school system. Thus, not-

withstanding the defects and shortcomings which this study will candidly point out, the experiment at Gary rightly observed and interpreted is both interesting and stimulating.

COSTS

SCHOOL YEAR 1915–1916

COSTS

I. ACCOUNTING METHODS

THE basic financial record of the Gary schools consists of a single-entry cash book of receipts and disbursements, prescribed by the State Bureau of Public Accounts, and the original documents supporting the several entries.

In recording receipts and expenditures, the cash record makes no fund divisions other than the Common School Tuition Fund, available only for teachers' salaries; Special School Fund, available for any school purposes whatsoever; Bond Principal and Interest Fund, available only to redeem bonds and pay interest thereon; and Loan Funds, the proceeds of bonds.

Distribution of expenditures to show the character of the expense—that is, whether for operation, upkeep, fixed charges, or capital outlay—is made on records supplementary to the cash book, and these are worked out mostly by students, as a laboratory exercise in the commercial department, from invoices, payrolls, requisitions, work orders, and the like.

Finally, the cash record takes cognizance of revenues only when they are received, and of expenditures only

when paid, with the result that revenues credited against one school year may belong to the preceding or succeeding year, and an expenditure paid in 1915-1916 may represent an obligation incurred in 1914-1915; thus, to some extent, accounts of different school years overlap.

The methods employed do not adequately meet the requirements of a school system such as that of Gary, organized into day, Saturday, night, summer, and Sunday schools, and conducting numerous instructional and industrial activities. For example, from the records as they stood July 31, 1916, it was impossible to draw either a balance sheet or a specific revenue and expenditure statement for the school year 1915-1916. Furthermore, an examination of the cost reports developed the fact that these are not reports of total direct expenditures, but tabulations of expenses after the direct expenditure has been apportioned among a number of organizations or activities on a theoretical or empirical basis.

Therefore, to determine the expenditures of the schools for the fiscal year August 1, 1915, to July 31, 1916, it was necessary to canvass all expenditures for the period in order to eliminate such items as belonged to other years and to add such invoices and payrolls as remained unpaid at the year's end.

It was also necessary to analyze anew all cost reports. In the course of this analysis, original documents were often encountered which did not contain the required

information. Store records were not infrequently lacking. Inventories showing materials on hand at the beginning and end of the year were either not at hand or were inaccurate and incomplete. Expenditures were not carefully divided as between plants, organizations, and services, and often the character of the expenditures was not clearly defined.

The analysis in question required, as the first step, the preparation of an adequate expenditure code. The code prepared takes into consideration:

(1) Divisions by school plants.

(2) Character of expenditure.

(3) Services.

Services were subdivided into

(a) Services relating to administration, the expenditure for which can not advantageously be distributed to any other service division.

(b) Other general services, such as compulsory attendance and medical inspection.

(c) Services relating specifically to property—its acquisition, obligations of ownership, operation, and upkeep.

(d) Services relating specifically to instruction.

The expenses of the Gary schools as compiled on the basis of this code and our analysis of the cost, along with related data, are reported in the appendix in the following tables:

A. Expenditures and Revenues in Summary.

B. Balance Sheet.

C. Operation Statement.
D. Revenue Statement.
E. Fund Statement.
F. Inventory Statement.
G. Bond Statement.
H. Expenditures by Organization in Summary and in Detail.

These tables, it will be noted, are the result of our own work, and are independent of what the Gary authorities may have compiled or published, although it should be stated that in distributing expenditures we did not depart from the bases of distribution employed at Gary.[1]

The present report is confined entirely to the description and discussion of Gary expenditures. Comparison with other cities is not attempted. To have assembled data strictly comparable with Gary would have involved an equally thoroughgoing financial study of other cities. Nevertheless, those wishing to institute comparisons between Gary and any other school system will find the required detail for the Gary schools in the tables of the appendix, and will only need to make a similar cost classification and distribution for the system to be compared.

[1] For example, the plant operation expense at the Jefferson School is distributed, 72 per cent. to the day school, 10 per cent. to the Saturday school, and 18 per cent. to the night school, and we did not alter these bases of distribution.

II. CURRENT COST OF ENTIRE SYSTEM

PUBLIC school costs embrace capital outlays for grounds, buildings, and permanent equipment, current expenses for operation and upkeep, and fixed charges (that is, interest, pensions, etc.). Undoubtedly, a complete cost[1] report should also include a reasonable charge on capital invested, and an allowance for depreciation, inasmuch as time and use antiquate the best of buildings and equipment, but we have no means of determining what these charges should be at Gary. This report, therefore, treats each of these several items of expense, with the exception of allowances for depreciation and charges on capital invested. But we are concerned chiefly with the operation cost of the Gary schools, and it is important to make clear at the outset what this includes. As we use the term, operation cost covers upkeep (that is, repairs and replacements), and current expenses other than upkeep, but does not include fixed charges.

The current expenses of the entire Gary system for the school year 1915-1916 were $255,438.41. This amount was distributed as follows:

[1] Cost should be distinguished from expenditures, for a report of expenditures would also cover debt payments.

TABLE I[1]

CURRENT COST OF THE ENTIRE SYSTEM

ORGANIZATION DIVISIONS	EXPENSES OTHER THAN UPKEEP	UPKEEP	TOTAL	PER CENT. OF TOTAL
Administrative and General Services[2]	$ 21,047.72	$ 630.27	$ 21,677.99	9
Day School	166,841.30	15,163.09	182,004.39	71
Saturday School	12,427.45		12,427.45	5
Night School	22,641.76		22,641.76	9
Summer School	13,544.64		13,544.64	5
Sunday School	3,142.18		3,142.18	1
Total	$239,645.05	$15,793.36	$255,438.41	100

[1] This table is based on Table H of the Appendix.

[2] Administrative and General Services include the Board of Education, the Superintendent, Supervision of Heat and Power Plants, Attendance Enforcement, Medical Inspection, etc.; in short, items which it is customary to report under General Administration. See Schedule H-1 of the Appendix.

A review of the total current expenses of a system is not only interesting but yields the perspective needed if judgment is to be passed on the expenditure for any single kind of school. But at Gary, as elsewhere, the day schools are the heart of the system, the direct cost amounting to 71 per cent. of the total current expenditure for public education. For this reason, and because of the widespread popular interest, the analyses and discussions of this report center chiefly on the operation cost of the Gary day schools. However, other types of schools are considered incidentally, and the appendix supplies detailed financial data on each branch of the system.

III. CURRENT COST OF REGULAR DAY SCHOOLS

ALTHOUGH we shall shortly question its propriety, common practice charges the entire cost of administrative and general services (which includes the expense of the board of education, the superintendent, and the like) against the day school. If, then, $21,677.99, the current expenditure for administrative and general services, be added to $182,004.39, the direct operating cost of the day school (Table I), the total current day school expense becomes $203,682.38. This is equal to a current expense of $49.29 per pupil in average daily attendance (4,132), or of $36.02 per pupil on total enrollment (5,654). The per pupil expense in average daily attendance may be divided as in Table II.

Each item of Table II requires analysis and comment, but before we undertake this, it is necessary to explain the difference in the reported expenditures under Administrative and General Services as given in Table I ($21,677.99) and in Table II ($36,046.55). Administrative and General Services in Table I include the overhead for the system as a whole. In contrast, Administrative and General Services in Table II include the

TABLE II

Division of Expense Per Pupil in Average Daily Attendance at Regular Day Schools

SERVICES	TOTAL EXPENDITURE	PER PUPIL EXPENSE	PER CENT. OF TOTAL
A. Administrative and General Services	$36,046.55	$ 8.72	17.7
1. Administration:			
(1) The Board[1]	4,853.79	1.17	2.4
(2) The Superintendent[1]	7,640.14	1.85	3.7
(3) Supervision:			
(a) Of Property[1]	1,821.75	.44	.9
(b) Of Instruction[2]	7,462.42	1.81	3.7
(4) Principals[2]	6,906.14	1.67	3.4
(5) Total	28,684.24	6.94	14.1
2. General Services:			
(1) Provision and Storage of Supplies[1]	681.12	.16	.3
(2) Transportation Service[1]	654.88	.16	.3
(3) Compulsory Attendance[1]	730.84	.18	.4
(4) Medical Inspection[1]	5,009.74	1.21	2.5
(5) Library Service[1]	18.70		
(6) Instruction in Other Institutions[1]	267.03	.07	.1
(7) Total	7,362.31	1.78	3.6
B. Operation and Maintenance of Plant	39,633.45	9.59	19.5
1. Operation of Buildings and Grounds[2]	26,423.27	6.39	13.0
2. Upkeep of Buildings, Grounds, and General Equipment[2]	13,210.18	3.20	6.5
C. Instruction	128,002.38	30.98	62.8
1. Teachers' Salaries[2]	120,652.20	29.20	59.2
2. Supplies and Equipment Upkeep[2]	7,350.18	1.78	3.6
D. Grand Total	$203,682.38	$49.29	100.

[1] All items marked "1" are from Schedule H-1 of the Appendix.
[2] All items marked "2" are from Schedule H-2 of the Appendix.

overhead expenditures for the system as a whole, and also the direct overhead of the day schools (expenditures for day school supervision and principals), and presents the total as the overhead of the day school.

ADMINISTRATION

An expense per pupil in average daily attendance of $6.94 for administration (Table II) is higher than is generally reported for such service. However, before judgment is passed the services covered should be carefully scrutinized. Administration, as the term is employed here, draws a clear line between the services of those who direct and control the work of others, and the services of those actually engaged in doing things, whether it be running a boiler or teaching a class. On the basis of this division, this report includes under administration services not ordinarily covered (for example, supervision), and omits other services ordinarily included (such as compulsory attendance and medical inspection). Therefore, when the per pupil expense for administration is reported as $6.94, it should be understood that this covers all services having to do with the direction and control of the day schools, whether the legislative direction and control of the board of education, the executive direction and control of the superintendent, the supervisory control of property or instruction, or the managerial direction and control of school principals. For this reason, it is not out of place to caution against hasty comparisons of administration cost.

It is equally important before passing judgment to understand how expense charges are made; that is, whether the day schools carry the entire expense of a given kind of administrative service or only a part of it.

For example, the board of education and the superintendent direct and control the day schools, but they perform a like service for the Saturday schools, the night schools, the summer schools, and the Sunday schools. Nevertheless, the Gary auditor charges the totals of all such expense—as is the common practice—against the day school. Hence, the reported expenses of the board and of the superintendent of schools (Tables II and III) are the totals for these purposes.

Certain public school accountants hold that it is unfair to charge the entire expense of the board and superintendent against the day school, on the ground that such expenses should be apportioned among the different types of schools. While we agree with this position in theory, we have not seen any satisfactory basis for such distribution—whether the proposed basis is the total direct cost of the several activities, or teacher instruction hours,[1] or pupil instruction hours.[2] Therefore,

[1] A teacher instruction hour is a clock hour's service on the part of a single teacher.

[2] A pupil instruction hour is the reception on the part of a single pupil of a clock hour's instruction.

The pupil instruction hours, exclusive of the Sunday schools, rendered by the different branches of the service in 1915-1916, were:

Day schools . . .	5,515,575	Summer schools . .	80,465
Saturday schools . .	106,978		
Night schools . . .	167,984	Total	5,871,002

TABLE III

ADMINISTRATIVE EXPENSE

SERVICE	CURRENT EXPENSES							TOTAL	EXPENSE PER PUPIL IN AVERAGE DAILY ATTENDANCE
	OTHER THAN UPKEEP AND DEPRECIATION				UPKEEP OF PROPERTY				
	SALARIES AND WAGES		OTHER EXPENSES	TOTAL	REPAIRS TO BUILDINGS AND GROUNDS	REPAIRS TO EQUIPMENT	TOTAL		
	OFFICIALS AND EXECUTIVES	ASSISTANTS AND OPERATIVE FORCE							
The Board:									
Board Members[1]	$ 443.75	$485.77	$1,064.64	$1,994.16				$1,994.16	$ .48
Staff Service[1]:									
Accounting and Reporting	1,320.00	664.90	210.21	2,195.11		$230.84	$230.84	2,425.95	.59
Legal Service	318.10		24.16	342.26				342.26	.08
Treasurer			91.42	91.42				91.42	.02
The Superintendent[1]	6,000.00	485.77	1,141.87	7,627.64		12.50	12.50	7,640.14	1.85
Supervisors:									
Supervision of Property[1]	1,800.00		21.75	1,821.75				1,821.75	.44
Supervision of Instruction[2]	6,575.00	448.15	423.27	7,446.42		16.00	16.00	7,462.42	1.81
Principals[2]	6,030.00	546.94	321.02	6,897.96		8.18	8.18	6,906.14	1.67
Total	$22,486.85	$2,631.53	$3,298.34	$28,416.72		$267.52	$267.52	$28,684.24	$6.94

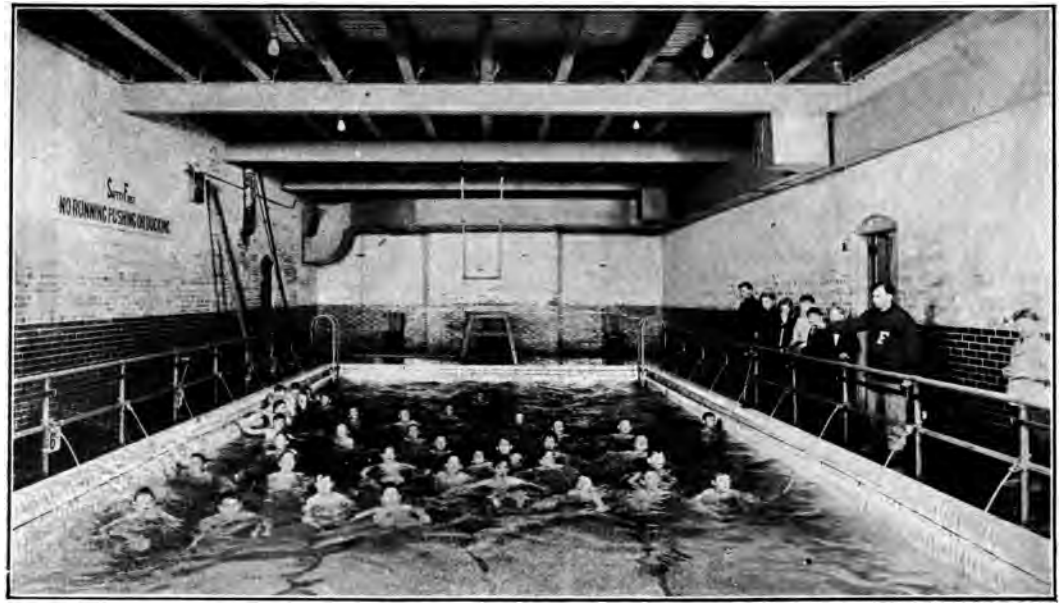
[1] All items marked "1" are from Schedule H-1 of the Appendix.

[2] All items marked "2" are from Schedule H-2 of the Appendix.

until an appropriate basis of distribution is experimentally determined it is altogether proper, we believe, either to treat the expenses of the board and of the superintendent as an overhead charge against the entire system, or to debit such expenses—as is now the common practice as well as the practice at Gary—against the day school.

The Gary authorities likewise charge the entire expense of property supervision against the day school. That is, the 44 cents per pupil for property supervision (Tables II and III) represents the total amount spent on this service, which at Gary has to do with the oversight of heat and power plants only. Since several kinds of schools use the same heat and power equipment, it would seem proper to apportion such supervision among the different organizations occupying the same building. But an equitable distribution of such expense is now, as we shall see in connection with the operation and upkeep of buildings, next to an impossible task. At any rate, we have made no attempt to apportion it, leaving the entire expense of property supervision against the day school as debited by the Gary authorities.

The expense of instructional supervision is, however, handled differently. The $1.81 per pupil for instructional supervision (Tables II and III) is only such part of the total expense for the system as the Gary authorities have charged or apportioned to the day school. In fact, the contracts of the supervisors are so drawn as to divide this expense. For example, the director of



Swimming Pool—Froebel School

night schools is also engaged for part day and full Saturday service; another is employed for regular day, Saturday, and evening schools; and still others, for the day school only. Again, supervisors are guaranteed work beyond what their contracts call for, and they receive additional pay for what they do. To illustrate: B's contract is for the day and Saturday schools at a salary of $2,000, which is apportioned $1,800 to the day school and $200 to the Saturday school. But B works also in the summer, earning $408 (Table IV). Similarly, D's regular day school salary is $1,100, but Saturday, evening, summer, and Sunday service raises the total to $1,964. As a result of so employing supervisors and of so distributing their salaries, only $7,462, or 67 per cent. of the total for supervision, is chargeable to the day school.[1]

The growing diversity of public education furnishes good reasons for engaging supervisors for specific tasks and for dividing the cost on a service base. But the respective charges at Gary—67 per cent. to the regular day school, 8 per cent. to the Saturday school, 8 per

[1] Supervisors receive pay only for what they do in the summer and Sunday schools. This also holds for the Saturday and night schools in the case of supervisors C and D. The salaries and expenses of the remaining three are apportioned as follows:

SUPERVISORS (SEE TABLE IV)	DAY SCHOOL	SATURDAY SCHOOL	NIGHT SCHOOL
A* (theoretically)	33⅓%	3⅓%	....
B	90 %	10 %	....
E	70 %	10 %	20%

*A receives theoretically 62½ per cent. of his salary as director of night school.

TABLE IV[1]

Distribution of Total Instructional Supervision Expense

Supervisors	Total Salaries	Part Charged Against or Apportioned to:				
		Day School	Saturday School	Night School	Summer School	Sunday School
"A".....	$1,812.49	$1,125.00	$125.00		$ 562.49	
"B".....	2,408.34	1,800.00	200.00		408.34	
"C".....	1,150.00	1,150.00				
"D".....	1,964.79	1,100.00	184.25	$362.00	263.54	$55.00
"E".....	2,508.34	1,400.00	200.00	400.00	508.34	
Total.....	$9,843.96	$6,575.00	$709.25	$762.00	$1,742.71	$55.00
Wages of Office Force.....	693.79	448.15	66.18	98.39	81.07	
Supplies and Other Expenses.....	658.73	439.27	67.33	64.41	87.72	
Grand Total	$11,196.48	$7,462.42	$842.76	$924.80	$1,911.50	$55.00
Per cent. of Total		66.6	7.5	8.3	17 1	0.5

[1] This table is based on Schedules H-2, H-3, H-4, H-5, and H-6 of the Appendix.

cent. to the night school, and 17 per cent. to the summer school (Table IV)—suggest either inadequate provision in some directions, or an unequal distribution.

The differences in cost for the same unit of supervisory service in the several branches of the service point to the latter view. For when supervision expense as now distributed is compared on the basis of teacher instruction hours, supervision costs 5.0 cents per teacher instruction hour in the regular day school; 13.4 cents in the Saturday school; 9.3 cents in the night school; and 26.4 cents in the summer school.[1] (Table V.)

These differences are striking. Yet the comparison can hardly be called unfair. There are enough teachers[2] in any one of these different kinds of schools to consume the full time of a supervisor, so that the cost of a reasonable amount of supervision in any type of school should not be unusual.

Under these conditions, it is certainly difficult to justify a relatively higher expenditure for Saturday and summer school supervision, where instruction is chiefly drill and review, than for regular day school supervision. Besides, summer service on the part of supervisors is regarded in most systems as essential to the efficiency of the regular day school, and is provided for as part of their regular service and pay. During the vacation months, plans are matured and materials prepared, in

[1] Teacher instruction hours are taken as the basis of comparison, for the reason that supervisors deal principally with teachers.

[2] See The Gary Public Schools: A General Account.

TABLE V

Cost Per Teacher Instruction Hour for Supervision

	DAY SCHOOL	SATURDAY SCHOOL	NIGHT SCHOOL	SUMMER SCHOOL	SUNDAY SCHOOL
Total Supervision Charge	$7,462.42	$842.76	$924.80	$1,911.50	$55.00
Teacher Instruction Hours	150,594	6,293	9,896	7,253	
Per Teacher Instruction Hour Cost.	5.0c.	13.4c.	9.3c.	26.4c.	

order that supervision may not suffer during the regular school time. The wording of the contracts with the supervisors does not really alter the fact that the practice at Gary conforms to common usage. As elsewhere, the day school is the arch of the system, and to the policies and practices of the day school, supervisors give the lion's share of their energies during both the regular school year and the summer.

In any case it is not apparent why supervision should not be provided in the different types of schools at approximately the same cost per teacher instruction hour rate. Were this done, the amounts now charged to the different schools would be materially altered. To illustrate: Should the total now spent on supervision, exclusive of the charge against the Sunday school, be distributed among the various branches of the system on the basis of the present average cost per teacher instruction hour for supervision (6.4 cents), $9,640.76, or 86 per cent. of the entire expenditure, would go to the regular day school (Table VI), and the per pupil cost of day school supervision would become $2.33 instead of $1.81, as reported above.

The Gary authorities pursue a similar method in charging and apportioning the salaries of school principals. In the first place, the contracts of principals and supervisors are much alike. Those of the principals call for full week-day service and salaries are apportioned 90 per cent. to the regular day and 10 per cent. to the Saturday school. Summer service is guaranteed

TABLE VI

REDISTRIBUTION OF TOTAL SUPERVISION EXPENSE ON BASIS OF AVERAGE PER TEACHER INSTRUCTION HOUR RATE (6.4 CENTS)

	DAY SCHOOL		SATURDAY SCHOOL		NIGHT SCHOOL		SUMMER SCHOOL		SUNDAY SCHOOL	
	Amount	Per cent. of Total	Amount	Per cent. of Total	Amount	Per cent. of Total	Amount	Per cent. of Total	Amount	Per cent. of Total
Original Charge	$7,462.42	66.6	$842.76	7.5	$924.80	8.3	$1,911.50	17.1	$55.00	.5
Redistributed Charge.....	9,640.76	86.1	402.87	3.6	633.53	5.7	464.32	4.1	55.00	.5

besides, and there is also opportunity for night work. To illustrate: Of A's regular salary, $2,000, $1,800 is charged to the day and $200 to the Saturday school; while the summer netted him $370. Again, D earned a total of $1,422, apportioned and charged as follows: day school, $990; Saturday school, $110; night school, $104; and summer school, $218.[1] (Table VII.)

Sound business policy requires the division of managerial expense among the different organizations operating in the same building. Where the personnel of the management is the same in the regular day, Saturday, and summer schools, as it is at Gary, the cost for the same unit of similar service ought not to vary greatly for the different organizations. But as apportioned and charged at Gary, building management costs, per 100 pupil instruction hours, 12½ cents in the regular day schools, 74 cents in both Saturday and night schools, and $1.57 in the summer schools. These radical differences suggest that the charge against the Saturday and summer schools is too heavy, thus lessening the load of the regular day schools.

Experience may demonstrate that the pupil instruction hour is not a fair base on which to apportion build-

[1] Supplies and clerical assistance are in part charged direct and in part apportioned. For example, summer school supplies are charged to the summer schools; all others are apportioned, 80 per cent. to the day schools, 10 per cent. to the Saturday schools, and 10 per cent. to the night schools. Clerical assistance for night and summer schools is charged direct, but that for the day and Saturday schools is divided 90 per cent. to the one and 10 per cent. to the other.

TABLE VII[1]

Distribution of Total Expense for Principals

PRINCIPALS	TOTAL	DAY SCHOOLS	SATURDAY SCHOOLS	NIGHT SCHOOLS	SUMMER SCHOOLS
A.....	$2,370.84	$1,800.00	$200.00		$ 370.84
B.....	2,335.00	1,800.00	200.00		335.00
C.....	1,570.83	1,170.00	130.00		270.83
D.....	1,422.75	990.00	110.00	$ 104.00	218.75
E.....	100.00	90.00	10.00		
F.....	100.00	90.00	10.00		
G.....	100.00	90.00	10.00		
Others.....	1,010.00			1,010.00	
Total.....	$ 9,009.42	$6,030.00	$670.00	$1,114.00	$1,195.42
Wages of Assistants.....	715.72	546.94	60.66	43.75	64.37
Other Expenses	471.40	329.20	60.50	81.70	
Grand Total.	$10,196.54	$6,906.14	$791.16	$1,239.45	$1,259.79
Per cent. of Total.....		67.7	7.8	12.2	12.3

[1] This table is based on Schedules H-2, H-3, H-4, and H-5 of the Appendix.

ing administration expense. Yet in the absence of scientific proof to the contrary, there is much to commend it. Should the average total building administration expenditure in all branches of the system for each 100 pupil instruction hours (17.4 cents) be used as the base for redistributing the total spent during 1915-1916 on principals, $9,579, or 94 per cent., would be charged to the regular day school, where our experience with principals convinces us that it belongs; for, although on duty Saturdays and during the summer, principals are at all times engrossed chiefly in regular day school problems. But so to redistribute the cost of managerial direction and control would raise the per pupil cost for principals from $1.67, as now reported (Tables II and III), to $2.32.

GENERAL SERVICES

As pointed out before, we have grouped all overhead expenditures, other than expenditures for administration, under General Services. Of these overhead charges, it is enough to say that, with the exception of the items Provision and Storage of Supplies, and Transportation, the reported expenditures (Table II) are the totals for these purposes. In the case of Provision and Storage of Supplies, and Transportation, the reported amounts are the undistributed balances after all legitimate charges against specific organizations have been made.

The only item requiring special comment is the 18 cents per pupil for Attendance Enforcement (Table II),

which is unusually small. Taking the country as a whole, attendance enforcement is a local matter, for which the local school organization bears the entire expense. In Indiana, however, attendance enforcement is largely a county affair, the county paying the bulk of the cost. Accordingly, Gary is at little expense for compulsory attendance, the total expenditure for 1915-1916 amounting to $730. Even this sum includes $485 allowed to principals as a special fund on the ground that teachers make the annual school enumeration. In fact, the salary and contingent expenses of the attendance officer paid by Gary aggregated only $245; this is, of course, in addition to what he receives from the county. Nothing could show more clearly than this simple item of attendance enforcement the danger of making cost comparisons between various cities unless the person making the comparison is familiar with the service, the conditions under which it is rendered, and how it is financed in the different cities compared.

OPERATION OF BUILDINGS AND GROUNDS

If we now turn to other than overhead expenditures, we find an even greater variety of ways of making charges and we also perceive that in a complex system such as that of Gary it is extremely difficult to report with exactness the actual cost of specific services. This is well illustrated in the attempt to determine the cost of plant operation.

The per pupil building and ground operation cost is

Nature Study Room—Froebel School

reported as $6.39 (Table II). This covers the usual items of personal service, such as engineers and janitors, and also fuel, water, light, supplies, and miscellaneous expenses. (Table VIII.) But this amount does not represent the direct expenditure in respect to these objects for the day schools; it is merely an estimate of the portion of the total expense of building and ground operation that the day school should bear.

The necessity of apportioning such expenses arises from the fact that each large building houses a number of separate school organizations. For example, the Emerson building shelters four kinds of schools; but there is only one coal-bin, one water-meter, and one gas-meter. Even under these circumstances, some operation expenditures become a direct debit against particular activities; for the most part, however, expenses incurred must be apportioned. Obviously, the reliability of the apportionment depends on the care and judgment exercised; obviously, good public school accounting depends not only on having well-determined bases of apportionment, but also on having proper classification of expenditures.

Generally speaking, building operation expenditures at Gary are apportioned on the basis of the relative amount of time each kind of school uses each plant. These proportions differ with the building, owing to the different uses to which the various plants are put. (Table IX.) For example, at Emerson the theoretical base (with the summer school excluded) was, for 1915-

TABLE VIII[1]

Expense of Operating Buildings and Grounds

KIND OF SERVICE	WAGES OF OPERATIVE FORCE	FUEL	WATER	GAS AND ELECTRICITY	OTHER OPERATING SUPPLIES	MISCELLANEOUS EXPENSE	TOTAL	PER CENT. OF TOTAL	PER PUPIL COST
Care of Grounds.....	$ 1,631.28				$ 23.05	$ 2.00	$ 1,656.33	6.3	$ .40
Heat, Light, and Power Service.....	3,935.11	$7,735.84		$522.69	437.52	70.53	12,701.69	48.0	3.07
Janitorial Service.....	8,081.80				1,781.34	543.95	10,407.09	39.4	2.52
Other Building Service			$1,571.75			86.41	1,658.16	6.3	.40
Total.....	$13,648.19	$7,735.84	$1,571.75	$522.69	$2,241.91	$702.89	$26,423.27	100.	$6.39
Per cent. of Total.....	51.6	29.3	5.9	2.0	8.5	2.7			

[1] This table is based on Schedule H-2 of the Appendix.

1916, 56 per cent. to the day school, 12 per cent. to the Saturday school, 20 per cent. to the night school, and 12 per cent. to the Sunday school. In contrast, at Jefferson 72 per cent. went to the day school, 10 per cent. to the Saturday school, and 18 per cent. to the night school.

TABLE IX

THEORETICAL BASES (1915-1916) FOR DISTRIBUTING PLANT OPERATION COST, EXCLUSIVE OF THE SUMMER SCHOOL

PLANT	TO THE DAY SCHOOL	TO THE SATURDAY SCHOOL	TO THE NIGHT SCHOOL	TO THE SUNDAY SCHOOL
Emerson	56%	12%	20%	12%
Froebel	56%	12%	20%	12%
Jefferson	72%	10%	18%	
Beveridge	80%	12%	8%	
Glen Park	80%	12%	8%	
Other Schools	85%	10%	5%	

These bases of apportionment are called theoretical, because they do not conform to the actual use of buildings and because in actual accounting there are numerous deviations from them. (Table X.) For example, engineers and janitors are, as a rule, paid direct for night and Sunday work, which leaves only their regular wages to be divided between the day and Saturday schools, generally 87½ per cent. to the one and 12½ per cent. to the other. Again, in some schools 10 per cent. of the water expense is charged to the summer school and the balance is apportioned 72 per cent. to the day, 10 per cent. to the

TABLE X[1]

PLANT USE OF DIFFERENT KINDS OF SCHOOLS[1]

PLANT	NUMBER OF DAYS OR NIGHTS IN SESSION, SCHOOL YEAR 1915-1916					
	DAY SCHOOL	SATURDAY SCHOOL	NIGHT SCHOOL	SUMMER SCHOOL	SUNDAY SCHOOL	PLAYGROUNDS, GYMNASIUMS, AND POOLS
Emerson	195	35	112	40	35	346
Froebel	195	35	140	40	35	346
Jefferson	195	35	112	40		
Beveridge	195	35	56	40		
24th Avenue	195	35		40		
Glen Park	195	35	56	40		
Ambridge	195	35	28	40		
West Gary	195					
Clarke	195			20		

[1] Day schools, Saturday schools, and summer schools at Emerson, Froebel, Jefferson, Beveridge are in session eight hours; at all other schools, seven hours; night schools are in session two hours, and Sunday schools, four hours.

Saturday, and 18 per cent. to the night school. At other buildings, for example, Emerson and Froebel, water charges are divided 50 per cent. to the day, 12 per cent. to the Saturday, 20 per cent. to the night, 12 per cent. to the Sunday, and 6 per cent. to the summer school. The result is that the reported plant operation expenditures for the day schools—and for all schools, for that matter—are made up of two classes of items, direct charges for specific services and charges made after the cost of the service is divided among a few or all of the different kinds of schools. The amount and the per cent. of the total plant operation expenditures actually charged and apportioned at each plant to each kind of school were as in Table XI.

To apportion plant operation expenditures is in the highest degree difficult. For example, how shall the coal bill be divided? Modern school buildings must be kept at all times above the freezing point, whether or not there is a Saturday or night or Sunday school. What is the additional fuel cost to raise the temperature to the point of comfort for these activities? The wages of engineers and janitors are equally difficult to handle. Ordinarily, engineers and janitors are hired by the month or by the year, working six or seven days a week. They use Saturday for general cleaning and minor repairs, and must keep the fires under their boilers on Sunday; during the summer they are busy overhauling buildings and equipment. When Saturday and summer schools are inaugurated, shall the wages of engineers and janitors,

TABLE XI[1]

Distribution of Total Plant Operation Expense

Plant	Day School		Saturday School		Night School		Summer School		Sunday School		Total
	Amount	Per cent.	Amount	Per cent.	Amount	Per cent.	Amount	Per cent.	Amount	Per cent.	
Emerson.....	$ 8,934.50	62	$1,505.78	10	$1,733.42	12	$1,190.25	8	$1,135.55	8	$14,499.50
Froebel.....	10,322.57	60	1,838.78	11	2,318.20	13	1,379.17	8	1,366.05	8	17,224.77
Jefferson.....	1,843.36	67	319.29	11	414.89	15	184.17	7			2,761.71
Other Schools...	5,322.84	79	678.23	10	492.83	7	259.26	4			6,753.16
All Schools.....	$26,423.27	64	$4,342.08	11	$4,959.34	12	$3,012.85	7	$2,501.60	6	$41,239.14

[1] This table is based on Schedules H-2, H-3, H-4, H-5, and H-6 of the Appendix.

as is the common practice, be charged entirely against the day schools, or shall, as at Gary, their salaries for two months be charged to the summer schools, and a sixth of their wages for the remaining ten months be debited to the Saturday schools? No satisfactory answer is at hand to these and other questions.

At all events, experience has demonstrated that plant operation expenditures cannot be apportioned equitably, at least at Gary, on the base of plant instruction hour use. This base equalizes, for all kinds of schools, plant instruction hour cost, irrespective of whether the school is conducted in the daytime, at night, in the winter, or in the summer. Obviously, the cost is not the same. Summer schools burn little or no fuel, day schools do not use as much light as night schools, nor do the different kinds of schools require an equal amount of janitorial service. The Gary authorities, therefore, in apportioning operation cost, make many departures from the single base of plant instruction hour use, although they adopt it as their guide.

To apportion plant operation expenditures on the base of pupil instruction hours would hardly prove more satisfactory. This base emphasizes attendance but ignores the fact that there are elements of cost in heating, lighting, and caring for a plant altogether independent of the number of pupils in attendance; hence, this base tends to lessen the operation burden of auxiliary activities and to overload the day school.

If a single base of distribution is to be employed,

room instruction hour use has much to commend it. In the first place, it minimizes attendance, so prominent in the pupil instruction hour base, and, in the second place, it distributes, in contrast to the plant instruction hour base, the operation cost in view of the portion of the plant actually employed. Nevertheless, we hesitate to reapportion the building operation expenditures at Gary even on this base.

Ten months' contact with Gary conditions and test tabulations incline us to the opinion that no single basis of apportioning plant operation expenditures will prove satisfactory. The solution lies, we believe, in developing for each plant, depending on the uses to which it is put, a number of bases built up around room instruction hour use; for example, one base for heat and another for light, one for engineers and still another for janitors, and so on for each major item of operation expenditure; but the derivation of such bases must await cost accounting and detailed data on the time, pupil, teacher, and room use of buildings by the different school organizations.

TABLE XII

PLANT INSTRUCTION HOUR OPERATION COST

PLANT	DAY SCHOOL	SATURDAY SCHOOL	NIGHT SCHOOL	SUMMER SCHOOL	SUNDAY SCHOOL
Emerson.....	$5.73	$5.38	$7.74	$3.72	$8.11
Froebel.....	6.62	6.57	8.28	4.31	9.76
Jefferson.....	1.18	1.14	1.85	.58	

The success of the Gary authorities in apportioning plant operation expenditures can probably be best judged from a comparison of building instruction hour operation cost charged at the largest plants against each school organization. These charges for 1915-1916 were as in Table XII.

UPKEEP OF BUILDINGS, GROUNDS, AND GENERAL EQUIPMENT

In contrast with the method of handling plant operation cost, the Gary authorities have never attempted to apportion upkeep expenditures. To be sure, upkeep bills were formerly debited, when paid, to the day or to the summer school, according as the one or the other was in session; but this practice is now abandoned, as it should be, so that all upkeep expenses are charged to the day schools, and the reported $3.20 per pupil cost (Table II) is the total expenditure for 1915-1916. (Table XIII.)

But this $3.20 per pupil upkeep cost does not represent direct cash outlay. Repairs and replacements at Gary are inseparably bound up with the school shops. As pointed out elsewhere,[1] the school shops do real work. They have the first chance on all repairs and replacements, and are paid (credited) for what they do as if they were privately owned and conducted. What actually happens is: A shop undertakes a repair job, against which is charged the cost of materials used and the

[1] In the volume dealing with Industrial Work.

TABLE XIII[1]

Upkeep of Buildings, Grounds, and General Equipment Expense

KIND OF SERVICE	REPAIRS TO GROUNDS	REPAIRS TO BUILDINGS AND PLANTS	REPAIRS TO PLANT EQUIPMENT	TOTAL	PER CENT. OF TOTAL	PER PUPIL COST
Care of Grounds	$498.20		$ 242.21	$ 740.41	5.6	$ .18
Heat, Light and Power Service		$ 4,021.35	143.02	4,164.37	31.5	1.01
Janitorial Service			136.64	136.64	1.1	.03
Care of Land, Buildings, and General Equipment		7,533.50	635.26	8,168.76	61.8	1.98
Total	$498.20	$11,554.85	$1,157.13	$13,210.18		$3.20
Per cent. of Total	3.8	87.5	8.7			

[1] This table is based on Schedule H-2 of the Appendix.

time (paid for at the union rate) it takes the instructor to do it himself, or his estimate of the time it would take him even when pupils do the work.[1] The shop is then credited with this amount and a corresponding debit entered against upkeep. Accordingly, there is no little uncertainty as to actual upkeep expenditures[2] or what these would be, were repairs and replacements made as in conventional systems.

Even if the reported $3.20 per pupil upkeep expenditure is the actual cost to Gary, there is no good reason why this should all be borne by the day schools. Unquestionably, Saturday schools, night schools, etc., involve additional wear and tear of grounds, buildings, and general equipment. There are, however, no approved bases of distribution. Time and use are, of course, the two chief factors in deterioration. For practical purposes, time may be eliminated, leaving only use to be considered. Thus considered, upkeep cost for each building might be apportioned on the basis of plant instruction hour use, or on the basis of pupil instruction hours, or on the basis of room instruction hour use. The first ignores difference in wear and tear due to differences in attendance, and the second disregards deterioration due merely to opening up a plant. The last or room instruction hour base has some advan-

[1] Methods of determining shop production cost and of making credits and charges are discussed fully in the chapter on Shop Cost.

[2] This is also partially true of operation and capital outlay expenditures, for the shops furnish operation supplies and work on new construction as well.

tages. It equalizes differences in wear and tear from attendance, and it takes account, at least to a certain extent, of the deteriorating effects of putting a plant into operation. For these reasons, it appears to be the preferable base. But if used at all, it should be employed advisedly, for no apportionment basis can be confidently employed until its worth has been scientifically demonstrated.

On a room instruction hour basis of distribution, the regular day school would carry, even when the Sunday school is eliminated, only 87 per cent. of the upkeep burden,[1] and the per pupil upkeep cost would be $2.77 instead of the reported $3.20.

INSTRUCTION: TEACHERS' SALARIES

As in other systems, the largest single item of expense is teachers' salaries, amounting at Gary to 59 per cent. of the total. (Table II.) However, the reported expenditure of $29.20 per pupil in average daily attendance is not an out and out cash outlay, for even here we are not free from divisions and apportionments, involving complicated accounting problems. (Table XIV.)

For example, at Glen Park the manual training teacher's salary is first divided equally between instruction and plant operation. Plant operation carries a half, for the reason that the instructor is expected, through the boys whom he trains, to keep the boilers of the six-

[1] The basis of this distribution was in fact teacher instruction hours, which differs at most only slightly from room instruction hours.

room building going during the day. The instruction burden, already halved, is further reduced by credits for production. The result is that out of a regular annual salary of $1,000 only $418 is charged against instruction.

At Jefferson and Beveridge the practice is reversed—custodians become teachers. To illustrate: At Jefferson the custodian's wage is divided one part to plant operation and two to instruction; this latter debit is made on the ground that the custodian at times looks after boys in the shop and also teaches them how to run the engine and to care for the boiler. The instruction charge is next subdivided, five-sixths to the day and one-sixth to the Saturday school, to be reduced in each case by production credits. Accordingly, the final disposition of this custodian's total wage ($1,034.45) is: $283.44 as custodian, divided among the day, Saturday, and night schools; $423.15 as day school teacher; $24.57 for Saturday instruction; and $303.29 against upkeep and capital outlay.

It is not worth while to attempt to unravel this tangled skein to show how these salaries and wages would be apportioned on a strict work-time basis, for there are also far-reaching practical and educational policies involved. It suffices for our purpose to call attention to this practice as a factor that affects instruction cost.

The method of handling the wages of shopmen also requires examination. The shopmen at Gary are not licensed teachers; with few exceptions, they are journeymen accustomed to work and to receive pay for six days

TABLE XIV[1]

INSTRUCTION: TEACHERS' SALARIES, SUPPLIES, AND EQUIPMENT UPKEEP

KIND OF SERVICE	GENERAL AND OPERATION EXPENSES			UPKEEP OF EQUIPMENT	TOTAL
	SALARIES OF TEACHERS	INSTRUCTIONAL SUPPLIES	OTHER EXPENSES		
General Instruction	$ 78,001.07	$ 759.01	$ 243.39	$ 165.60	$ 79,169.07
Commercial Instruction	2,286.25	14.02		255.00	2,555.27
Science Instruction:					
Nature Study	3,137.25	44.76	9.58	2.98	3,194.57
Physics	2,388.50	63.96		53.20	2,505.66
Chemistry	3,200.00	230.48		32.95	3,463.43
Botany	2,917.28	23.31	5.62	95.50	3,041.71
Zoology	2,859.17	71.15	61.36	100.03	3,091.71
Household Arts Instruction:					
Domestic Arts	2,153.75	43.51		8.55	2,205.81
Domestic Science	2,587.00	4.22	18.80	59.24	2,669.26
Industrial Arts Instruction:					
Manual Training	3,517.91	187.96	55.72	66.77	3,828.36
Mechanical Drawing	2,200.00	34.53	65.00		2,299.53

Cabinet Shop	138.08	51.33		37.30	226.71
Pattern Shop	105.91	24.99	2.81	126.17	259.88
Foundry	626.97	23.07	78.10	205.20	933.34
Forge Shop	380.92	98.26	76.76	61.00	616.94
Machine Shop	430.13	103.60	38.44	48.49	620.66
Plumbing Shop	113.02	91.51	3.31	8.00	215.84
Sheet Metal Shop	117.26	59.44	7.81	66.09	250.60
Paint Shop	63.40	80.31	7.92	9.87	161.50
Print Shop	780.58	97.76	41.41	54.62	974.37
Shoe Shop	551.67				551.67
Pottery	270.83	9.66			280.49
Physical Instruction	11,825.25	23.45	2,565.13	472.17	14,886.00
Total	$120,652.20	$2,140.29	$3,281.16	$1,928.73	$128,002.38

[1] This table is based on Schedule H-2 of the Appendix.

a week. Where licensed teachers are similarly engaged, although they are busy Saturdays helping boys, caring for tools, and preparing materials, their salaries are debited to the day schools, but at Gary only five-sixths of all shop wages are so charged. The situation is further complicated by the use of productive shops and shop credits. In fact, the credits for production against manual training and shop instructors' time in 1915-1916 amounted to more than half of the total shop payroll, which, exclusive of mechanical drawing but including manual training, amounted for both regular and Saturday schools to $17,826.11,[1] leaving a net shop wage charge against the day schools of only $7,096.68,[2] and against the Saturday schools of $1,156.66.[3] Even if these final net charges are taken at their face value, it appears that manual and industrial instruction costs almost as much on Saturday as on a regular school day, an apportionment which can scarcely be justified in view of the difference between week-day and Saturday attendance.

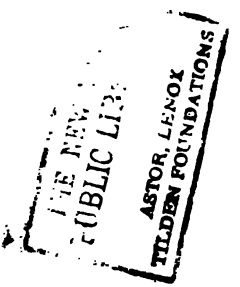
Finally, it is necessary to keep in mind, when discussing instruction cost, that much of what is done in the Gary Saturday schools is accomplished elsewhere as a part of the regular day school work. To illustrate: In other cities lessons lost by absence are made up after school, and, besides classes for defectives and the tuber-

[1] Table XIX.

[2] Schedule H-2 of the Appendix.

[3] Schedule H-3 of the Appendix.

Woodworking Shop—Froebel School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cular, there are often classes (usually small) for fast, slow, and backward children; also "coaches" in large buildings for groups and individuals requiring special assistance. The additional expenditures for these purposes are included in the day school cost, making it higher than it would be were most of such expense charged, as at Gary, against a Saturday school.

INSTRUCTION: SUPPLIES AND EQUIPMENT UPKEEP

A further element in instruction cost is the expenditure for instructional supplies and equipment upkeep, amounting to a per pupil charge of $1.78. (Table II.) The actual expenditure, however, for instructional supplies as this term is generally used aggregates only 52 cents per pupil. (Table XIV.) The smallness of this sum may come as a surprise, but it is to be remembered that it covers only the incidentals used by the teachers, including also paper and the like handed out by them to pupils for special written work and examinations.

The Gary authorities appreciate the desirability of providing all supplies and textbooks free of charge, but the Indiana law prevents. To overcome this obvious handicap, the teachers are allowed to collect from the children fees which are turned over to the principals, who buy the textbooks and other necessities called for by the course of study. These fees are not included in the reported cost of the Gary schools. The rates at which collections are made in any one year from the children are as follows:

Kindergarten	$ .00
Grades 1 and 2	.75
Grades 3 and 4	1.50
Grades 5, 6, 7, and 8	2.25
High School (all classes)	3.00

SUMMARY

To summarize: When the $49.29 current expense per pupil in average daily attendance in the regular day schools is thus analyzed and the make-up of the several expense items described, it becomes apparent that $49.29 is not an exact figure, but only an approximation. All that can be said is that this is the current operation expense per pupil in average daily attendance when computed according to the bases of distribution prevailing at Gary, with only minor deviations therefrom on our part. As to the wisdom and correctness of these distributions, opinion will differ. Exception may easily be taken to the way in which salaries of supervisors, principals, custodians, and shopmen are divided, or to the practice of charging the entire expense of building upkeep to the day schools, or to the manner in which certain other items are handled. Yet, after months of the minutest study of the Gary accounts, it is impossible, with the data at hand, to reconstruct them. For educational cost accounting is exceedingly complicated, and while necessity compels the apportionment of any number of items, there is not to-day a single generally accepted basis of distribution, nor is there unanimity of opinion as to the classification of expenses. In short,

the whole field of public school cost accounting, at least for complex school systems, is undeveloped. For this reason we caution once more against cost comparisons either between totals or between specific services, unless it is positively known that the same methods of classification obtain, and that the division and apportionment of salaries, wages, and other expenses, ways of financing, and accounting methods are substantially identical.

IV. CURRENT COST OF LARGER DAY SCHOOLS

AS POINTED out elsewhere, Gary schools range from portables to large modern buildings.[1] The foregoing sections shed, therefore, little light on what a fully developed Gary system would cost. The nearest approach to an idea of such cost can be obtained from the Emerson, Froebel, and Jefferson schools. The respective current expense per pupil in average daily attendance in these schools, as operated in 1915-1916, was approximately as follows:

TABLE XV

CURRENT EXPENSE PER PUPIL IN AVERAGE DAILY ATTENDANCE AT EMERSON, FROEBEL, AND JEFFERSON SCHOOLS

SCHOOL	KINDERGARTEN	ELEMENTARY SCHOOL GRADES			HIGH SCHOOL	ALL GRADES
		1 to 5	6 to 8	1 to 8		
Emerson.....	$46.83	$64.49	$74.58	$68.75	$90.80	$74.64
Froebel.....	40.17	48.51	57.54	50.29	79.22	52.37
Jefferson.....	31.67	34.89	33.97	34.64		34.31

A more detailed statement shows wherein the operation expenses of these schools differ, and thus supplies

[1] See report on Organization and Administration.

the data for school to school comparison, also for comparisons between the cost of particular services in these schools and in the system as a whole.[1]

When considering the respective current costs of the Emerson, Froebel, and Jefferson schools, it should be borne in mind that Emerson—probably the best expression of the Gary idea—is working at hardly more than half capacity. This accounts in part for the present very high cost of plant operation, and may also affect somewhat the per pupil instruction cost, although the teachers now engaged appear to be fully occupied. Froebel is

[1] In compiling the current cost of Emerson, Froebel, and Jefferson, the same difficulties were encountered with respect to the division and apportionment of salaries, wages, and expenditures as were met when considering the cost of the system as a whole. It would be unprofitable to reconsider these; suffice it to say that no redistribution was attempted. It is, however, necessary to call attention to the manner in which we handled particular items. In the case of the board, the superintendent, supervisors both of property and of instruction; transportation; provision and storage of supplies; instruction of pupils in other institutions; branch libraries; compulsory attendance enforcement; and medical inspection service, the cost per pupil in average daily attendance for the system was charged alike in each school against the kindergarten, elementary grade groups, and the high school. Managerial as well as plant operation and upkeep cost was handled in a like manner, except that here the per pupil cost for the building became the charge. Instruction cost was by far the most troublesome. As accounts are kept at Gary, there is no distinction between kindergarten, elementary, and high school. The same teacher, as a rule, has both elementary and secondary classes, and in the same class there are often different grades. Where it was necessary to apportion a teacher's salary, this was divided, when possible, on the basis of the instruction periods given to the classes of the elementary divisions or the high school; otherwise it was divided on the basis of the number of pupils in a class from each of the different grade groups. Finally, instructional supplies and equipment upkeep was apportioned on the basis of the relation of the present charges to the different grades for supplies and textbooks; in this compilation, the charge for the kindergarten was considered the same as the present charge for the first and second grades.

TABLE XVI[1]

CURRENT EXPENSE PER PUPIL IN AVERAGE DAILY ATTENDANCE AT EMERSON SCHOOL

SERVICES	KINDER-GARTEN	ELEMENTARY SCHOOL GRADES			HIGH SCHOOL	ALL GRADES
		1 to 5	6 to 8	1 to 8		
A. Administrative and General Services..	$10.05	$10.05	$10.05	$10.05	$10.05	$10.05
1. Administration:						
(1) Other Than Principal.....	5.27	5.27	5.27	5.27	5.27	5.27
(2) Principal.....	3.00	3.00	3.00	3.00	3.00	3.00
2. General Services.....	1.78	1.78	1.78	1.78	1.78	1.78
B. Operation and Maintenance of Plant.	16.85	16.85	16.85	16.85	16.85	16.85
1. Operation of Buildings and Grounds	12.04	12.04	12.04	12.04	12.04	12.04
2. Upkeep of Buildings, Grounds, and General Equipment.....	4.81	4.81	4.81	4.81	4.81	4.81
C. Instruction.....	19.93	37.59	47.68	41.85	63.90	47.74
1. Teachers' Salaries.....	19.70	33.76	41.41	36.99	57.67	42.76
2. Instructional Supplies and Equipment Upkeep.....	.23	3.83	6.27	4.86	6.23	4.98
D. Grand Total.....	$46.83	$64.49	$74.58	$68.75	$90.80	$74.64

[1] This table is based on Schedules H-1, H-2, and H-2-a of the Appendix. See also explanatory note, page 45.

TABLE XVII[1]

CURRENT EXPENSE PER PUPIL IN AVERAGE DAILY ATTENDANCE AT FROEBEL SCHOOL

SERVICES	KINDER-GARTEN	ELEMENTARY SCHOOL GRADES			HIGH SCHOOL	ALL GRADES
		1 to 5	6 to 8	1 to 8		
A. Administrative and General Services..	$ 8.48	$ 8.48	$ 8.48	$ 8.48	$ 8.48	$ 8.48
1. Administration:						
(1) Other Than Principal.....	5.27	5.27	5.27	5.27	5.27	5.27
(2) Principal.....	1.43	1.43	1.43	1.43	1.43	1.43
2. General Services.....	1.78	1.78	1.78	1.78	1.78	1.78
B. Operation and Maintenance of Plant.	10.28	10.28	10.28	10.28	10.28	10.28
1. Operation of Buildings and Grounds	6.87	6.87	6.87	6.87	6.87	6.87
2. Upkeep of Buildings, Grounds, and General Equipment.....	3.41	3.41	3.41	3.41	3.41	3.41
C. Instruction.....	21.41	29.75	38.78	31.53	60.46	33.61
1. Teachers' Salaries.....	21.32	28.18	36.01	29.72	56.15	31.70
2. Instructional Supplies and Equipment Upkeep.....	.09	1.57	2.77	1.81	4.31	1.91
D. Grand Total.....	$40.17	$48.51	$57.54	$50.29	$79.22	$52.37

[1] This table is based on Schedules H-1, H-2, and H-2-b of the Appendix. See also explanatory note, page 45.

TABLE XVIII[1]

CURRENT EXPENSE PER PUPIL IN AVERAGE DAILY ATTENDANCE AT JEFFERSON SCHOOL

SERVICES	KINDER-GARTEN	ELEMENTARY SCHOOL GRADES			ALL GRADES
		1 to 5	6 to 8	1 to 8	
A. Administrative and General Services	$ 8.77	$ 8.77	$ 8.77	$ 8.77	$ 8.77
1. Administration:					
(1) Other Than Principal	5.27	5.27	5.27	5.27	5.27
(2) Principal	1.72	1.72	1.72	1.72	1.72
2. General Services	1.78	1.78	1.78	1.78	1.78
B. Operation and Maintenance of Plant	4.21	4.21	4.21	4.21	4.21
1. Operation of Buildings and Grounds	2.53	2.53	2.53	2.53	2.53
2. Upkeep of Buildings, Grounds, and General Equipment	1.68	1.68	1.68	1.68	1.68
C. Instruction	18.69	21.91	20.99	21.66	21.33
1. Teachers' Salaries	18.48	21.54	20.37	21.22	20.91
2. Instructional Supplies and Equipment Upkeep	.21	.37	.62	.44	.42
D. Grand Total	$31.67	$34.89	$33.97	$34.64	$34.31

[1] This table is based on Schedules H-1, H-2, and H-2-c of the Appendix. See also explanatory note, page 45.

likewise a thoroughgoing Gary school, but has never had its full complement of pupils. An increased enrollment would undoubtedly require corresponding additions to the teaching force, but would probably not cause a corresponding increase in plant operation expenditure. On the other hand, Jefferson, while crowded, is an old-fashioned building, slightly remodeled, and offers, in comparison with Emerson and Froebel, limited advantages.

Accordingly, the cost at Jefferson, based on average daily attendance, runs very uniformly for the different grades—$31.67 for the kindergarten, $34.89 for grades 1 to 5, and $33.97 for grades 6 to 8. It varies, in contrast, at Froebel from $40.17 for the kindergarten to $48.51 for grades 1 to 5, $57.54 for grades 6 to 8, with an average of $79.22 for the different years of the high school. The differences at Emerson are even greater and the cost still higher: for the kindergarten, $46.83; grades 1 to 5, $64.49; grades 6 to 8, $74.58; and $90.80 for the high school. In comparing cost at Emerson and Froebel with cost at Jefferson, and particularly in comparing grade cost at Emerson and Froebel with the cost of elementary instruction in other cities, it should be borne in mind that elementary pupils in Emerson and Froebel enjoy unusual opportunities in shops and in science, and that high school teachers instruct them both in science and in drawing.

V. CURRENT COST OF THE SCHOOL SHOPS

A FINANCIAL report of the Gary schools might well cover in detail each of the activities Gary emphasizes. For practical reasons we confine ourselves to a single special feature, the school shops.

We include under shops not only forge, foundry, etc., but the manual training shops. The manual training shops are included because they also do productive work and the credits they receive for their products reduce the cost of operating them by 12 to 31 per cent.

The Gary authorities distinguish between regular day and Saturday shops, dividing the operating expense five-sixths to the day school and one-sixth to the Saturday school. In our discussion, we disregard this distinction and combine the cost, for there is only one set of shops and, as pointed out above, the expense would be practically the same whether they are open five or six days a week.

Owing to the peculiar method of handling shop cost, it is especially important at the outset to fix in mind the initial or total amount spent on shops. This aggregated in 1915-1916, exclusive of supervision, $22,535.31, and was distributed as shown in Table XIX.

This expenditure covers the wages of the manual

Forge—Emerson School

TABLE XIX

TOTAL SHOP COSTS

REGULAR DAY AND SATURDAY SCHOOLS COMBINED

SHOPS	CURRENT EXPENSES						
	TOTAL	OTHER THAN UPKEEP AND DEPRECIATION				UPKEEP OF SHOPS AND EQUIPMENT	DEPRECIATION OF EQUIPMENT
		Salaries and Wages of Instructors and Assistants	Instructional Supplies (Materials)	Other Supplies and Expenses	Total		
Total	$22,535.31	$17,826.11	$3,650.32	$375.37	$21,851.80	$683.51	
Manual Training Shops							
Froebel School	1,972.05	1,856.65	104.11		1,960.76	11.29	
Jefferson School	1,899.29	1,733.51	117.05	31.25	1,881.81	17.48	
Beveridge School	568.88	498.07	46.64	16.92	561.63	7.25	
Glen Park School	766.17	640.00	77.06	18.36	735.42	30.75	
Cabinet Shop, Froebel School	1,712.65	1,340.16	335.19		1,675.35	37.30	
Pattern Shop, Emerson School	1,006.02	676.65	199.83	3.37	879.85	126.17	
Foundry, Emerson School	1,681.41	1,244.95	137.54	93.72	1,476.21	205.20	
Forge, Emerson School	1,831.30	1,445.89	232.10	92.31	1,770.30	61.00	
Machine Shop, Emerson School	1,208.93	937.00	176.72	46.72	1,160.44	48.49	
Plumbing Shop, Froebel School*	1,990.59	1,758.00	220.69	3.90	1,982.59	8.00	
Sheet Metal Shop, Froebel School*	1,586.41	1,267.63	243.32	9.37	1,520.32	66.09	
Paint Shop, Froebel School	1,761.80	1,101.94	640.49	9.50	1,751.93	9.87	
Print Shop, Emerson School	2,147.04	1,311.58	798.27	10.59	2,120.44	26.60	
Print Shop, Froebel School	1,406.11	1,027.08	311.65	39.36	1,378.09	28.02	
Shoe Shop, Froebel School	662.00	662.00			662.00		
Pottery, Froebel School	334.66	325.00	9.66		334.66		

* Including the short period these shops were located at Emerson School.

training teachers and of the shopmen, the outlay for all materials used in instruction and in productive work, as well as for supplies, upkeep of shops, and shop equipment.

While Gary actually spent during 1915-1916 $22,535.31 on regular day and Saturday shops, the final or net cost to be charged against instruction was much less. The shops, as stated before, do productive work for which they receive credit.[1] The credits, as computed by us, amounted in 1915-1916 to a total of $12,217.62. (Table XX.) The soundness of thus reducing instruction cost must now be discussed.

The Gary authorities credit the shops to the extent of the estimated market value of their products; but, for reasons that will appear as we proceed, we credit them only with production cost. To illustrate: If lumber, hardware, etc., including operation supplies, to the amount of $15, and labor to the amount of $35 go into the construction of a school desk, the production cost of the desk is $50, and we credit the shop with $50, regardless of whether the market value of the desk is $25, $75, or what not. However, the credits thus allowed include not only the productive work of the regular day and Saturday schools, but also such products as the night schools turn out.[2]

In order to compute on the basis of production cost the

[1] The shoe shop and the pottery are the only shops that receive no such credit.

[2] The amount of productive work done in the night schools is small and so interwoven with the productive work of the regular day and Saturday schools that it was impossible to separate it and erect a separate account.

TABLE XX

SHOP PRODUCTION CREDITS

REGULAR DAY AND SATURDAY SCHOOLS COMBINED

CREDITS			Shops	AMOUNT CREDITED TO:				ESTIMATED* MARKET VALUE OF SHOP PRODUCTS
Labor	Materials	Total		Total	Operation	Upkeep of Property and Equipment	Capital Outlay	
$9,572.77	$2,644.85	$12,217.62	Total	$12,217.62	$2,473.15	$5,965.38	$3,779.09	$16,268.87
			Manual Training Shops:					
173.88	53.62	227.50	Froebel School	227.50		199.45	28.05	
303.29	24.60	327.89	Jefferson School	327.89		313.91	13.98	
164.48	14.00	178.48	Beveridge School	178.48		127.53	50.95	
98.26	28.27	126.53	Glen Park School	126.53		119.80	6.73	
1,200.04	274.21	1,474.25	Cabinet Shop, Froebel School	1,474.25	6.21	403.08	1,064.96	1,908.60
549.57	169.89	719.46	Pattern Shop, Emerson School	719.46	10.12	479.10	230.24	1,039.05
492.72	110.15	602.87	Foundry, Emerson School	602.87		300.35	302.52	1,008.79
988.79	114.40	1,103.19	Forge, Emerson School	1,103.19	5.75	699.38	398.06	1,360.48
420.85	53.04	473.89	Machine Shop, Emerson School	473.89	40.24	256.72	176.93	641.73
1,627.00	113.22	1,740.22	Plumbing Shop, Froebel School	1,740.22	6.00	1,008.94	725.28	4,170.80
1,130.55	172.25	1,302.80	Sheet Metal Shop, Froebel School	1,302.80	20.92	798.77	483.11	1,457.71
1,037.20	544.13	1,581.33	Paint Shop, Froebel School	1,581.33	24.70	1,258.35	298.28	
752.24	765.51	1,517.75	Print Shop, Emerson School	1,517.75	1,517.75			3,167.01
633.90	207.56	841.46	Print Shop, Froebel School	841.46	841.46			1,514.70

* Estimates of shop instructors, covering the production of all schools, day, night, Saturday, and summer. The omission of this statement as to Manual Training and Paint Shops is due to a confusion in their records.

credits to be granted the several shops, it became necessary for us to determine as exactly as possible two factors: (a) the time, and (b) the materials, distributed against production. Each of these factors calls for consideration.

In a well-managed industrial concern, it is a simple matter to decide on the labor cost of production, but in the Gary school shops it was extremely difficult. In the first place, there are in the school shops, as a rule, two kinds of workers—the pupils and the instructors. The pupils may be busy on something for themselves, but more often they are working—especially the older ones—on building and equipment repairs, on additions to buildings, on new equipment, or on supplies. These older pupils fill out time slips in a formal manner, but their time, except when pupils are paid as helpers, is rarely distributed against construction work. In a word, their time is not considered and does not enter directly as a factor in reporting production cost.

In the second place, the teacher may be busy with instruction and shop routine; he may be engaged along with his pupils on constructive work; he may be engaged on a job independently, meanwhile supervising also the work of pupils; or he may be absent from the shop altogether, on a special assignment, such as repairing a roof, power plant, or the like. In whatever capacity he is engaged—and the records are not always clear—it is the time of the instructor only, not the time of pupils, except when they are paid as helpers, that is taken into account.

The artisan-instructor first reports his time on a time

slip,[1] which covers his entire period of duty. The time thus reported is distributed between non-productive and productive hours. But the productive hours as here given do not have the same meaning as productive time entered on similar slips in industry. In industry, productive time on time-slip reports indicates the actual time that the workman himself gave to the job. Productive time as recorded on the Gary time slips may mean one of several things—it is impossible to tell which. It may mean (a) the hours the instructor himself worked on the job; or (b) the instructor's estimate of the time he gave to supervision, instruction, and assistance while his pupils worked; or (c) the instructor's estimate of how long it would have taken him to do the task himself, regardless of the attention he gave to supervision and instruction while his pupils were doing the work, and regardless of the time they actually gave to it. Obviously, when the record of productive time on the time slips is thus ambiguous, it is impossible to determine the amount of time the artisan-teachers themselves give to production. Therefore, if productive time at Gary as reported on time slips is construed as equivalent to productive time in industry, such an interpretation involves the assumption that the time of the instructor devoted to supervision and instruction of children is offset by their labor.

While the Gary authorities require their artisan-instructors to make the time report in question, they compute the labor cost of production on the basis of a second

[1] Manual training teachers do not make this time slip report.

report in which productive hours of service are entered against specific jobs. But even the productive time of this second report[1] does not have the same meaning as productive time in industry. It may and does include such items as "instruction," that is, attendance on teachers' conferences and the like. Moreover, the time so reported may be and often is an estimate made at the completion of the job, not a record, made step by step, as the work progresses. Hence, even the produc-

TABLE XXI

PRODUCTIVE TIME FROM TIME SLIPS AND PRODUCTIVE TIME FROM PRODUCTION REPORTS

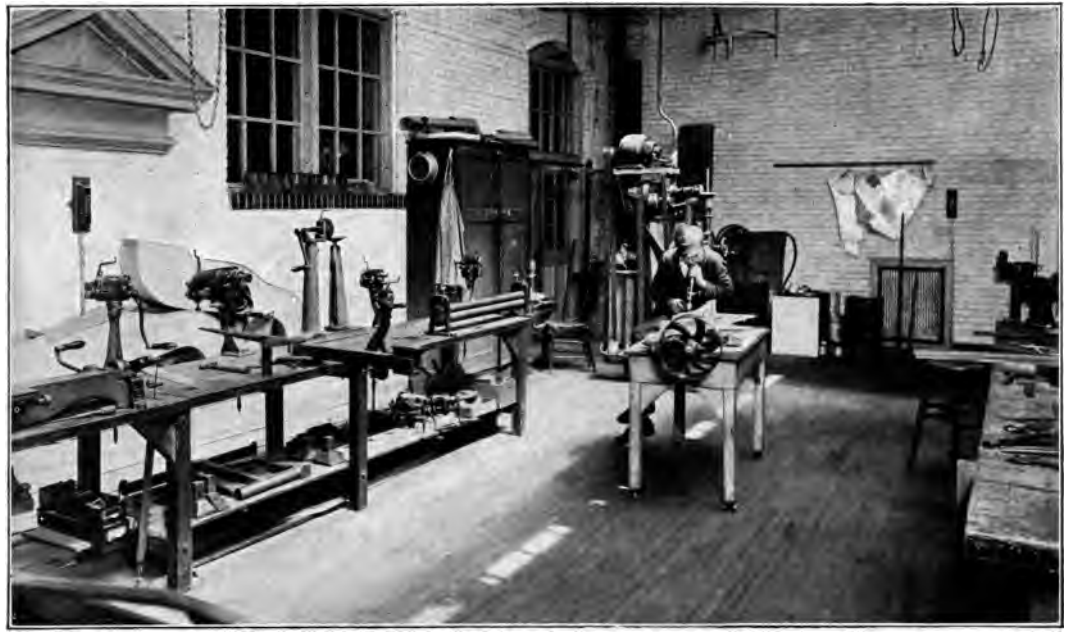
REGULAR DAY AND SATURDAY SCHOOLS COMBINED

SHOPS	PRODUCTIVE TIME FROM TIME SLIPS†	PRODUCTIVE TIME FROM PRODUCTION REPORTS*	DIFFERENCE
Cabinet Shop	$ 1,327.95	$1,200.04	$ 127.91
Pattern Shop	588.59	549.57	39.02
Foundry.....	867.92	492.72	375.20
Forge.....	1,365.00	988.79	376.21
Machine Shop	744.25	420.85	323.40
Plumbing Shop	1,661.69	1,627.00	34.69
Sheet Metal Shop.....	1,225.55	1,130.55	95.00
Paint Shop...	1,093.94	1,037.20	56.74
Print Shop, Emerson...	920.04	752.24	167.80
Print Shop, Froebel....	648.73	633.90	14.83
Total.....	$10,443.66	$8,832.86	$1,610.80

†This tabulation does not include the non-productive time reported on time slips.

*In this calculation the $739.91 of productive time credited to manual training teachers is not included because they are paid on a monthly basis and do not make time-slip reports.

[1] This report is made also by manual training teachers.



Sheet Metal Shop—Froebel School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tive time recorded on the second report may have any one or all of the meanings mentioned in connection with the productive time reported on the previous time slips.

These two separate reports on productive time are not checked one with the other, and hence do not agree. When expressed in terms of money, there is a difference between them of $1,610.80 (Table XXI)—a difference which it was impossible for us to reconcile.

Therefore, in attempting to determine the labor cost of production we were compelled to take the reports of productive time at their face value, treating the productive time so reported—which in most cases is an estimate of unknown meaning—just as if it had the same definiteness and significance as productive time in industry. We were also compelled, inasmuch as we had no definite basis which would enable us to augment the time of the instructor in respect to particular jobs, to base our credit allowances on the productive time given in the second time report, which is less, as pointed out, by $1,610 than that given in the first or time-slip report. In consequence, the sum in question, representing the difference between the productive time of the two reports, became a charge against instruction.

Similar difficulties were encountered in attempting to determine the cost of materials. Theoretically, all materials and supplies are first assembled in a storeroom and afterwards distributed to the shops on requisition. In practice, while some materials go through the storeroom, much goes directly to the shops; and in the case

of special construction or repair jobs material may even be delivered directly to the building where the work is to be done. For example, paper and printing ink are stored on open shelves in the print shops; pig-iron, coke, and foundry supplies, in bins in the foundry; bar-iron and steel, on open racks in the forge shop; pipes and plumbing supplies, in the plumbing shop. When needed, these are used by the instructor of the shop in which they are stored, and by the instructors of other shops as well.

Under these circumstances, there is no little opportunity for error. An instructor who has used material may forget to make out a requisition; again, in estimating the value of the material there may be inaccuracies in respect to quality, quantity, price, and extensions; with the result that correct charges may not be made or materials may be charged against the wrong job. In a word, the control over materials and supplies is not rigorous. This is evidenced by the reported deficits in the storeroom—$9,486 in 1913-1914,[1] and $5,240 in 1914-1915[2]. Nor is the total value of the materials received checked against the value of the materials used and on hand. Thus, without proper inventories, invoices, and requisitions, it was impossible for us to do more than accept the values of the materials consumed in construction as reported by the shop instructors.

The production credits as computed by us and given in Table XX are based, therefore, on productive time

[1] Financial Report of the Gary Public Schools, 1913-1914.

[2] Financial Report of the Gary Public Schools, 1914-1915.

and purchase value of materials as entered by the shop instructors in their production reports. While these were generally accepted, no effort was spared to examine payrolls, invoices, requisitions, or whatever might throw light on the question at issue. While it is frankly admitted that there may be errors in some of the details of these analyses, it is believed that they are as accurate as it is possible to make them from existing data.

In determining the character of the credit—that is, whether it should be charged to operation, upkeep, or capital outlay—the Gary distribution was followed; the only departures arise from an occasional difference of judgment as to classification of items.

With credits allowed and their distribution determined, it is a short road to the final cost of the Gary school shops. Their final or net cost represents the difference between the total initial expenditure, $22,535.31, and the production credits allowed, $12,217.62, a difference of $10,317.69. Taken as a whole, the Gary school shops thus appear, without counting educational supervision, to be 54 per cent. self-supporting; that is, there is an abatement, by reason of productive work, of 54 per cent. of the total initial cost.

The final cost of the respective shops, when credit is given for only the labor and material value of these products, is as given in Table XXII.

However, if credit is given on the basis of the estimated market value of their products, as fixed by the instructors, the final cost of the shops would be quite different. The

TABLE XXII[1]

FINAL SHOP COSTS

Regular Day and Saturday Schools Combined

Shops	Current Expenses							
	Total	Other than upkeep and depreciation				Upkeep of shops and equipment	Depreciation of equipment
		Salaries and Wages of Instructors and Assistants	Instructional Supplies (Materials)	Other Supplies and Expenses	Total		
Total	**$10,317.69**	**$8,253.34**	**$1,005.47**	**$375.37**	**$9,634.18**	**$683.51**	
Manual Training Shops:							
Froebel School	1,744.55	1,682.77	50.49		1,733.26	11.29	
Jefferson School	1,571.40	1,430.22	92.45	31.25	1,553.92	17.48	
Beveridge School	390.40	333.59	32.64	16.92	383.15	7.25	
Glen Park School	639.64	541.74	48.79	18.36	608.89	30.75	
Cabinet Shop, Froebel School	238.40	140.12	60.98		201.10	37.30	
Pattern Shop, Emerson School	286.56	127.08	29.94	3.37	160.39	126.17	
Foundry, Emerson School	1,078.54	752.23	27.39	93.72	873.34	205.20	
Forge, Emerson School	728.11	457.10	117.70	92.31	667.11	61.00	
Machine Shop, Emerson School	735.04	516.15	123.68	46.72	686.55	48.49	
Plumbing Shop, Froebel School[2]	250.37	131.00	107.47	3.90	242.37	8.00	
Sheet Metal Shop, Froebel School[2]	283.61	137.08	71.07	9.37	217.52	66.09	
Paint Shop, Froebel School	180.47	64.74	96.36	9.50	170.60	9.87	
Print Shop, Emerson School	629.29	559.34	32.76	10.59	602.69	26.60	
Print Shop, Froebel School	564.65	393.18	104.09	39.36	536.63	28.02	
Shoe Shop, Froebel School	662.00	662.00			662.00		
Pottery, Froebel School	334.66	325.00	9.66		334.66		

[1] This table is based on Schedules H-2 and H-3 of the Appendix.

[2] Including the short period these shops were located at Emerson School.

shop instructors, in 1915-1916, placed a market value on their products of $16,268, which is alone 72 per cent. of the initial cost of all shops; but it should be noted that this amount (Table XX) does not include the market value of the products of the manual training shops or of the paint shop, as the records of these shops were incomplete.

The market value estimates furnished by the instructors are in many cases higher than the labor and material cost of the products; the difference represents the supposed work of the pupils over and above the productive time lost by the instructor in teaching and supervising them, or the supposed profit of a vendor, or both.

Owing to the diversity of the products and the uncertainty with regard to the productive time and the materials charged against particular jobs, it was impossible to check these estimates from the reports themselves or from outside sources. But the question may fairly be raised as to whether Gary is not paying high for all its productive work, even when this is charged to the system at actual labor and material cost. Without doubt the market value estimates made by the instructors would in trade often be regarded as high. (Table XXIII.)

Finally, crediting the shops for what they do at the actual labor and material cost of production amounts simply to charging other departments and divisions of the system for an expenditure actually made. But adding to the original expense an imaginary profit of 25 to 150 per cent. is equivalent to charging other departments and divisions of the system with an expense

TABLE XXIII

Estimated Market Value of Illustrative Items

SHOP	ITEM	LABOR	MATERIALS	TOTAL COST	ESTIMATED MARKET VALUE
Cabinet Shop	Hanging of fire extinguisher	$10.40		$10.40	$15.00
Pattern Shop	Repair of stair rail	10.40	$ .50	10.90	16.50
Foundry	Repairs to cleaning bench	4.50	1.50	6.00	8.00
Forge	Repairs to playground equipment	25.00	1.00	26.00	35.00
Machine Shop	Assisting in foundry	15.00		15.00	22.50
Machine Shop	Drillings	12.50	.30	12.80	17.50
Plumbing Shop	Repair of aquarium	45.00	16.24	61.24	85.73
Sheet Metal Shop	Steel ceiling	40.00	22.69	62.69	62.69
Print Shop, Froebel	"Round Table" (school paper)	8.33	8.00	16.33	40.00
Manual Training Shop	Care of building and teaching	20.85		20.85	35.00

Cooking Room—Emerson School

that was never incurred, and makes the reported expenditure larger than the real expenditure. On the other hand, crediting the shops to the extent of this imaginary profit reduces their operation cost far below what the cost actually is. In a word, administrative policies and school accounting run into all kinds of inconsistencies when based on anything besides actual expenditures. Hence, we believe that we are justified in basing credits on actual labor and material cost, and reporting the Gary school shops as 54 per cent. self-supporting.

It should, however, be remembered that this estimate is derived by taking all shops together, including even the shoe shop and the pottery, though they do no productive work for which they receive credit. On the other hand, while the manual training shops do receive credit for their products, they are not operated primarily on a production basis, as are the following shops:

[1]Cabinet shop	(Froebel)	Plumbing shop	(Froebel)
Pattern shop	(Emerson)	Sheet metal shop	(Froebel)
Foundry	(Emerson)	Paint shop	(Froebel)
Forge	(Emerson)	Print shop	(Emerson)
Machine shop	(Emerson)	Print shop	(Froebel)

If, therefore, these essentially productive shops are considered by themselves, and credited on the basis of the labor and material cost of their products, they are 69 per cent. self-supporting; that is, there is an abatement, by reason of productive work, of 69 per cent. of their total initial cost. (Tables XIX and XXII.)

[1]After April, 1916, the cabinet shop was operated as a manual training shop.

VI. CAPITAL OUTLAY FOR GROUNDS, BUILDINGS, AND EQUIPMENT

WE HAVE been engaged up to this point in seeing what it cost to operate the Gary schools in a given year. The Gary plan requires more extensive school grounds, a new type of school building, and more abundant equipment than the old-type education. Now, what capital outlay has been involved in thus instituting these schools?

Gary's capital investment in grounds, buildings, and equipment at the end of the school year 1915-1916 aggregated $1,016,319 (Table XXIV), equal to a capital outlay of $246[1] per pupil in average daily attendance. But this city-wide average, although suggestive, sheds little light on the per capita outlay which a thoroughgoing Gary system would require; for the widest disparity exists in building facilities, as is clearly revealed in the differences in per pupil plant investment, ranging, as it does, from $38 in the poorest schools to $524 at Emerson.

Nor does the per capita investment of $135 at Jeffer-

[1] We are aware that per pupil capital outlay should be expressed in terms of pupil building capacity. But, as will be pointed out, the demonstrated pupil capacity of at least the larger Gary buildings is not known, and for this reason we fall back on average daily attendance.

TABLE XXIV[1]

CAPITAL OUTLAY FOR SCHOOL GROUNDS, BUILDINGS, AND EQUIPMENT

PLANT	GROUNDS AND IMPROVEMENTS	BUILDINGS	EQUIPMENT	TOTAL	PER PUPIL IN AVERAGE DAILY ATTENDANCE
Administrative Offices....		$ 1,000.00	$ 2,440.73	$ 3,440.73	$ .83
Emerson.....	$ 66,098.45	260,908.83	61,878.79	388,886.07	524.11
Froebel.....	77,571.75	316,283.23	39,662.57	433,517.55	288.43
Jefferson.....	18,205.24	77,490.59	2,614.16	98,309.99	135.04
Beveridge.....	5,988.01	13,367.87	3,259.02	22,614.90	43.49
Tolleston.....	13,294.05			13,294.05	
Glen Park.....	8,952.56	19,156.03	2,487.05	30,595.64	136.59
All Other Schools.....	2,246.11	10,526.78	2,887.99	15,660.88	37.74
Farm.....	10,000.00			10,000.00	
Total.....	$202,356.17	$698,733.33	$115,230.31	$1,016,319.81	$245.96

[1] These figures are from the Report of the Public Schools of Gary, to which, after minor corrections, was added the capital outlay for 1915-1916. See Schedule H-7 of the Appendix. It is well to note that all this property has been acquired since 1906 and that Beveridge and Glen Park are old settlements annexed to Gary in 1912, each having a small plant of its own.

son, or $288 at Froebel, or of $524 at Emerson supply a reliable basis for judgment as to what the necessary outlay would be. As pointed out above, Jefferson is an old-style, remodeled building, affording simply conventional facilities. Emerson and Froebel meet the requirements of a Gary school, but, as stated before, neither of these buildings has ever been used to capacity on the Gary plan. Consequently, on the basis of present use, the per capita investment as shown for Jefferson is probably lower, and that for Emerson and Froebel is considerably higher, especially that for Emerson, than would be required by a thoroughgoing Gary system.

In the absence of positive data on the capital outlay required by a Gary school, we must at present content ourselves with an estimate. Obviously, the estimate will vary with the amount and price of land provided for outside activities, as also with the type and character of the proposed building. Even a more important factor is the pupil capacity of the plant on the Gary plan. This will vary according to the proposed length of the school day, the proposed size of classes in the old-line studies, the time division between the "fundamentals" and the "special branches," the amount and extent of departmentalization, the number of children placed at one time in auditorium, music rooms, laboratories, shops, and the like, and according to the indoor provisions for the accommodation of children in bad weather, when outside facilities cannot be used.

With these different factors affecting the estimate,

TABLE XXV

CAPITAL OUTLAY ON ESTIMATED CAPACITY[1]

SCHOOL	GROUNDS		BUILDINGS		EQUIPMENT		GROUNDS, BUILDINGS AND EQUIPMENT	
	Capital Outlay	Per Pupil Outlay	Capital Outlay	Per Pupil Outlay	Capital Outlay	Per Pupil Outlay	Capital Outlay	Per Pupil Outlay
Emerson.....	$66,098.45	$28.74	$260,908.83	$113.44	$61,878.79	$26.90	$388,886.07	$169.08
Froebel.....	77,571.75	33.73	316,283.23	137.51	39,662.57	17.25	433,517.55	188.49

[1] Emerson and Froebel, according to the Superintendent, each have accommodations for 6 kindergarten classes of 50 pupils, 34 first to sixth grade classes of 40 pupils, 8 seventh and eighth grade classes of 35 pupils, and 12 high school classes of 30 pupils, a total of 60 classes, accommodating 2,300. For a detailed description of these buildings, see report on Organization and Administration.

there is no likelihood at present of agreement on the pupil capacity of a building operated on the Gary plan, and positive knowledge must await experimentation and experience with a definite program.

In the meantime, an idea of the required per pupil capital outlay may be obtained from an estimate based on the present capital investment in the two largest Gary plants, and on the superintendent's judgment of their respective capacities. On this basis, assuming that the present equipment is adequate for the maximum estimated enrollment, the per pupil capital outlay at Emerson would be $169, and at Froebel, $188. (Table XXV.) Of course Emerson and Froebel could not be duplicated to-day at anything like their original cost, and, as stated before, the pupil capacity will differ with the requirements of the program followed.[1]

[1] For an analysis of the superintendent's estimate, see report on Organization and Administration.

VII. FIXED CHARGES

IN ADDITION to the current expense of operating a school system and to the capital invested in grounds, buildings, and equipment, there is a type of school expenditure which we have not included as part of current cost, nor as part of capital outlay, though it is unquestionably part of the current school burden upon the community. All such expenditures are grouped under Fixed Charges and ordinarily embrace rent, insurance, pensions, taxes for local improvements, and interest on funded and floating debt.

Gary does not maintain a local teachers' pension fund, and rentals for school purposes have been negligible, amounting in 1915-1916 to only $30 for a storage coal yard. The usual building, security and liability insurance is carried, the premiums for 1915-1916 being $619.59. But the interest charges appear always to have been heavy. In 1915-1916 alone, they amounted to $33,248.85, equal to 8.6 per cent. of the total revenues for the year. (Table XXVI, and Schedule H-1 of the Appendix.)

It is not difficult to understand this fact. The Gary authorities had the task of creating an entire school system in a brief period. Bonds have been issued for

TABLE XXVI

INTEREST BURDEN, 1906-1916

YEAR	INTEREST ON BONDS	INTEREST ON FLOATING DEBT	TOTAL INTEREST	PER CENT. OF TOTAL REVENUES[1]
1906–7		$ 116.32	$ 116.32	0.7
1907–8		67.08	67.08	0.2
1908–9	1,093.55	1,045.78	2,139.33	2.2
1909–10	9,236.20	709.03	9,945.23	7.7
1910–11	10,431.47	333.96	10,765.43	5.6
1911–12	14,195.60	4,402.99	18,598.59	8.3
1912–13	13,842.50	6,551.87	20,394.37	8.1
1913–14	20,153.60	10,932.27	31,085.87	10.2
1914–15	19,505.95	15,601.60	35,107.55	10.8
1915–16	22,756.50	10,492.35	33,248.85	8.6
Total	$111,215.37	$50,253.25	$161,468.62	8.2

[1] Exclusive of loan funds (bonds and short-term loans).

buildings, but the half million[1] secured in this way was not adequate to erect enough buildings of the proposed type to keep pace with the school population.

To carry out the proposed building program, large sums, as we shall see in the next section, have been taken from current taxes for permanent improvements. Indeed, this has been done to such an extent that the funds for ordinary current expenses have been continuously depleted, with the result that it has been necessary, in order to keep the schools going, either to raise large amounts on temporary loans, or to defer the payment of school warrants. For example, at one time in 1914 there were outstanding unpaid warrants to the amount of $100,000. Whether the money was obtained on short-term notes, or whether the payment of school warrants was deferred, interest had to be paid. The heavy interest burden of the Gary schools is thus due to the size of the floating debt as well as to the bond issues.

[1] See Table XXVII and Table G of the Appendix.

VIII. FINANCING THE SYSTEM

GARY'S total school expenditure up to the end of 1915-1916 amounted to two and a half million dollars. It remains to inquire how this sum was raised.

As elsewhere, school funds are derived chiefly from three sources, viz., the state apportionment,[1] local taxation, and bond issues. Between 1906 and 1916 the state paid over to the Gary board of education $356,016.63; direct local taxation provided $1,614,284.74; and bonds account for $509,728.07. (Table XXVII.) Hence, for the period, 14.4 per cent. of the board's entire income came from the state, 65.1 per cent. from direct local taxation, and 20.5 per cent. from bonds. Sixty-five per cent. is not only a good proportion to raise locally, but the actual amounts produced—$15,725.97 in the first year of her corporate existence and $323,786.70 in 1915-1916—are large.

Gary has been able to raise large amounts for public education, in the first place because she has always commanded relatively large resources. Millions were invested in the industrial plants giving birth to the city,

[1] The state holds in trust certain vested funds and levies a state-wide school tax; the income from the former and the proceeds from the latter are apportioned annually to the separate school districts.

Art Studio—Emerson School

TABLE XXVII

SOURCE AND AMOUNT OF SCHOOL FUNDS[1]

YEAR	TOTAL AMOUNT RAISED	AMOUNT RECEIVED FROM STATE LEVY AND OTHER STATE FUNDS	PER CENT. RECEIVED FROM STATE	AMOUNT RAISED BY DIRECT LOCAL TAXATION	PER CENT. RAISED BY DIRECT LOCAL TAXATION	AMOUNT RAISED BY BOND ISSUES	PER CENT. RAISED BY BOND ISSUES
1906-7...	$ 17,139.89	$ 1,413.92	8.2	$ 15,725.97	91.8		
1907-8...	42,380.94	6,873.66	16.2	35,507.28	83.8		
1908-9...	235,900.81	10,644.56	4.5	85,868.34	36.4	$139,387.91	59.1
1909-10..	179,103.59	16,758.40	9.3	112,084.19	62.6	50,261.00	28.1
1910-11..	253,326.06	38,358.14	15.1	154,792.59	61.1	60,175.33	23.8
1911-12..	348,774.81	45,143.15	13.0	178,003.54	51.0	125,628.12	36.0
1912-13..	252,258.14	52,910.09	21.0	199,348.05	79.0		
1913-14..	364,501.50	60,537.29	16.6	243,964.21	66.9	60,000.00	16.5
1914-15..	349,365.40	60,896.38	17.4	265,203.87	75.9	23,265.15	6.7
1915-16..	437,278.30	62,481.04	14.3	323,786.70[2]	74.0	51,010.56	11.7
Total..	$2,480,029.44	$356,016.63	14.4	$1,614,284.74	65.1	$509,728.07	20.5

[1] Exclusive of short-term notes, a total of $38,800; of $51,185.22, overdraft as of July 31, 1916; and of $12,804.60 bond indebtedness assumed with annexed territory.

[2] This amount includes $6,182.18 derived from miscellaneous sources.

before there were any schools. When the schools were organized, this wealth lay at hand ready to be taxed for their support. Meanwhile, the wealth of the city has increased rapidly, additional millions going into industry and still further millions into the upbuilding of the city itself, with the result that Gary has probably had from the beginning greater resources back of each child to educate than the majority of cities of similar size and character.[1] For example, in the school year 1908-1909, the taxable property back of each child in average daily attendance amounted to $7,984. Attendance has increased more rapidly than taxable wealth, but even so there was in 1915-1916 $5,387 of taxables for each child in daily attendance. (Table XXVIII.) Among Gary's nearest neighbors approaching comparable size, Hammond had, in 1914-1915, $3,053 for each child in attendance, and East Chicago, $3,033.

In the second place, Gary has contributed freely in support of public education, the local tax levy often reaching well up toward the limit permitted by law. (Table XXIX.) The very first year of the system, 1906, saw the lowest levy, 80 cents on each $100, whereas for the last three years the rate has remained uniformly

[1] When the assessed property values for 1913 in seventy-four cities with a population of 30,000 and less than 50,000 reported in Financial Statistics for Cities, 1913, are placed against the average daily attendance for 1914-1915 as given in the Report of the U. S. Commissioner of Education for 1915-1916, the median wealth back of each child is $4,901, as compared with $5,252 at Gary. Undoubtedly, the greatest differences prevail in methods of assessment and in reporting attendance. These are, however, the best and only data available to show Gary's relative financial strength.

TABLE XXVIII

ASSESSED PROPERTY VALUE[1] BACK OF EACH CHILD

ASSESSED PROPERTY VALUE		SCHOOL POPULATION			AVERAGE DAILY ATTENDANCE		
Year	Assessed Value	Year	Children 6 to 20 Years of Age	Wealth per Child	Year	Number in Attendance	Wealth per Pupil
1906	$ 2,904,905	1907			1907-8	273	$10,641
1907	5,700,905	1908	1,480	$3,852	1908-9	714	7,984
1908	6,949,310	1909	1,668	4,166	1909-10	957	7,262
1909	9,631,465	1910	2,534	3,801	1910-11	1,936	4,975
1910	13,337,665	1911	4,013	3,324	1911-12	2,222	6,003
1911	18,942,655	1912	5,079	3,730	1912-13	3,115	6,081
1912	20,058,390	1913	6,114	3,281	1913-14	3,563	5,630
1913	21,463,255	1914	7,457	2,878	1914-15	4,087	5,252
1914	22,259,295	1915	7,041	3,161	1915-16	4,132	5,387
1915	28,211,440	1916	8,054	3,503			
1916	28,308,850						

[1] The common impression is that Gary property is assessed at about one-sixth its cash value. Also, it is important to note that the assessed property value, for example, of 1907 is set against the enumeration of 1908 and the school attendance of 1908-9. This is for the reason that in Indiana the assessed property value is fixed each year prior to May 15th, but the taxes collected on this assessment, for example 1907, are not available for school purposes before August 1, 1908, and are for the support of the schools during the school year 1908-9.

at $1.25.[1] The present levy for current operation, which includes the supplementary tuition tax and special taxes, is alone $1.15. There are two points in this connection worthy of comment. The supplementary tuition tax, which must be used for teachers' salaries, is kept uniformly below the maximum, whereas special taxes, more or less flexible in that they are at times used for purposes other than those for which they are levied, approximate the maximum.

Gary has also bonded herself to the legal limit—2 per cent. of all taxable property. Besides issuing bonds aggregating $506,500, Gary inherited through annexation a bond debt of $12,804.60, all but $1,000 of which has been extinguished, leaving bonds outstanding on July 31, 1916, of $507,500. (Table G of the Appendix.)

In addition to these bonds, there were other liabilities on July 31, 1916, amounting to $122,030.43, or total liabilities of $629,530.43. As an offset there were, besides the $1,016,319.81 in grounds, buildings, and equipment, other assets aggregating $21,181.50, or total assets of $1,037,501.31. Hence, the difference between the total assets and the total liabilities, $407,970.88, represents the Gary equity in school property. (Table B of Appendix.)

The financial history of the Gary schools to date may therefore be summarized as follows: The state has con-

[1] A high tax rate usually accompanies a low assessed property value and vice versa; property at Gary, as previously stated, is assessed at about one-sixth of its cash value.

TABLE XXIX

Local Levies 1906-1915 on Each $100 of Taxable Wealth

Year of Levy	Supplementary Tuition Tax		Special Taxes										Bond Principal and Interest Tax		Total Levy	Maximum Permitted
			Special School Tax		Vocational School Tax		Kindergarten Tax		Additional Special School Tax		Compulsory Education					
	Levy	Maximum Permitted	Levy	Maximum Permitted	Levy	Maximum Permitted	Levy	Maximum Permitted	Levy	Maximum Permitted	Levy	Maximum Permitted	Levy	Maximum Permitted		
1906	30c	50c	50c	50c										25c	$ .80	$1.25
1907	50c	50c	50c	50c										25c	1.00*	1.25
1908	40c	50c	50c	50c			1c	2c			10c	10c	25c	25c	1.26*	1.37
1909	40c	50c	50c	50c			1c	2c			10c	10c	25c	25c	1.26*	1.37
1910	20c	50c	50c	50c				2c			10c	10c	25c	25c	1.05*	1.37
1911	30c	50c	50c	50c				2c	5c	5c	10c	10c	5c	18c	1.00	1.35
1912	30c	50c	50c	50c				2c	5c	5c	10c	10c	5c	18c	1.00	1.35
1913	35c	50c	50c	50c	10c	10c		2c	15c	15c	5c	10c	10c	18c	1.25	1.55
1914	35c	50c	50c	50c	10c	10c		2c	15c	15c	5c	10c	10c	18c	1.25	1.55
1915	35c	50c	50c	50c	10c	10c		2c	15c	15c	5c	10c	10c	18c	1.25	1.55

* Exclusive of 10 cents on the $100 levied for the support of the public library, at that time under the control of the board of education.

tributed a total of $356,016. Gary has provided from local taxes the remainder of the funds required for their current operation expenses, also for fixed charges, and has raised, besides, the equivalent of 39 per cent. of the present investment in grounds, buildings, equipment, and other property, which leaves the schools in debt for 61 per cent. of their present assets.

So much for the financial past. What now of the financial future? The amount of money Gary can raise for public education is limited by state law. Operating under this law, Gary has at no time up to the present been financially able to provide for all the children of the city educational opportunities and facilities such as Emerson and Froebel afford. This, however, is no reason why in the initiation of the proposed system such schools as Emerson and Froebel should not have been built. But it goes without saying that the present inequalities in educational opportunities, except in so far as they arise from the scattered character of the school population, cannot continue indefinitely. In a word, the problem of financing a system of schools such as Gary proposes to establish must sooner or later be faced squarely.

When account is taken of the recent origin, extent, and rapid growth of the city, it is not at all surprising that Gary up to now has not been able to provide equal facilities in all her schools. But will the city be able to do this within, say, the next ten years? The question, of course, can only be answered on the basis of a number of accepted assumptions, such as the following:

(a) That the annual increases in school enrollment for the next ten years—that is, between 1916 and 1926—be the same as the average annual increase between 1911 and 1916;

(b) That the annual increases in the assessed value of property for the decade 1915-1925 be the same as the average annual increase between 1911 and 1915;[1]

(c) That bonds be issued to the maximum amount, 2 per cent. of the taxable wealth, and that the local school tax be kept continuously at the maximum, $1.55 on each $100 of the tax duplicates;

(d) That the present apportionment of state school funds and the present state laws controlling local school taxes and bond issues for school purposes remain unchanged;

(e) That the present official estimate of the per pupil capacity of buildings like Emerson and Froebel (2,300) be made the basis in computing future building needs;

(f) That the present cost per pupil in average daily attendance at Froebel be taken as the basis of computing future administration, operation, and instruction expense; and, finally,

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[1] The dates for the enrollment and the increase therein are one year later than the dates for the assessed value of property and the increase in such wealth, as the taxes for the support of the schools for any given year are levied on the assessed value of property as of the preceding year; also, a four-year period instead of a five is taken in estimating the annual increase in taxables, because the basis of assessment changes at the end of each fourth year, and the five-year period preceding 1915 covers two such changes, whereas only two will occur in the succeeding ten years. Hence, to base the estimated increase on a five-year period would augment unduly the estimate.

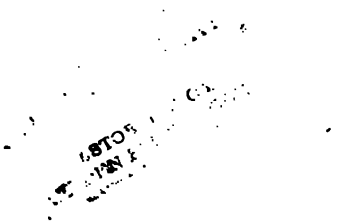
(g) That the present ratio between the current expenditures for administrative and general services and the day school combined, and for all other activities, such as night schools and the like, remain the same—80 per cent. and 20 per cent. respectively.

Proceeding on these assumptions, we shall first consider building needs and the possibility of financing them. The new buildings required by 1926 will depend on the school enrollment at that time, which we estimate at 11,878. This number is arrived at in this way: During the five years 1911-1916 the school enrollment increased 3,112. At the same average annual increase, the increase for the ten-year period 1916-1926 would be double, or 6,224. Adding this estimated increase to the actual enrollment for 1915-1916 (5,654) we obtain a probable enrollment for 1926 of 11,878.

To accommodate this number of pupils at least three new buildings of the Emerson and Froebel type must be provided, even if Glen Park and Jefferson continue to be operated, for experience has demonstrated that school buildings cannot be used in a changing and rapidly growing city at their maximum capacity.[1] To provide three new buildings of the kind contemplated will call, on the basis of the cost of the Froebel plant ($433,517.55), for a capital outlay by 1926 of not less than $1,300,552.65.

The natural source of income for new grounds and buildings is bonds issued against the taxable wealth of

[1] It is interesting to note that to meet present needs and the needs of the immediate future, plans are now under way for two new buildings.



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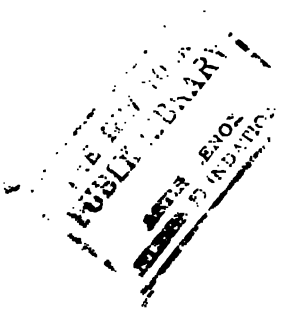

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1915-16 Revenues
Collections in 1914-1
Collections in 1915-1

1916-17 Revenues

Collections in 1915-1

R

Revenues 1915-16....
Deficit (unpaid 1915-1(

*Includes Compulsory Edu

R

Surplus from 1914-15.
Revenues 1915-16
Available 1915-16..
Available 1916-17..

*Amount in excess of 1915

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Revenues
Bond Proceeds....

Girls' Playground—Emerson School


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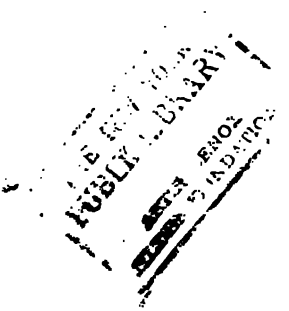

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1915-16 Revenues
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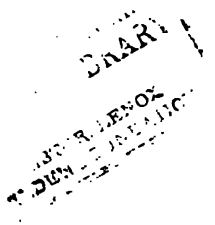
1916-17 Revenues

Collections in 1915-1



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Revenues 1915-16....
Deficit (unpaid 1915-1(

*Includes Compulsory Edu

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Surplus from 1914-15.
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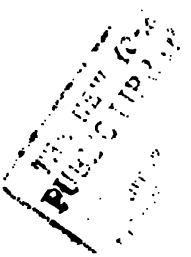

Girls' Playground—Emerson School

the community. The taxable wealth of Gary by 1925 should approximate $51,383,403, for, as taxables increased during the four years 1911-1915 $9,268,785, the increase for the ten years 1915-1925 would at the same average annual increase be $23,171,963. This sum plus the actual duplicate of 1915 ($28,211,440) gives assessed property by 1925 to the amount of $51,383,403.

Against this sum bonds may be issued up to 2 per cent. Gary may therefore raise for new buildings from bonds a total of $1,027,668.06—$272,884.59 less than will be required. Moreover, it is to be remembered that there were on July 31, 1916, bonds outstanding against taxables to the amount of $507,500. Unless these are taken up in the meantime—and for the sake of simplicity we assume they are not—new bonds can be issued only to the extent of $520,168.06, which leaves $780,384.59 to be raised from other sources if the new permanent equipment required by 1926 is to be provided.

The only remaining source of income for grounds and buildings is local taxation. Whether any such amount can be provided from local taxation depends on the margin of income remaining after the current operation expense and the fixed charges of the system are provided out of funds received from the state and raised locally. We estimate[1] that such margin of current income over current expenses will aggregate by 1926 $1,749,824.11. (Table XXX—Appendix).

In addition to the funds that may be raised by bonds,

[1] For the assumptions on which this estimate is based, see pp. 79-80.

only $780,384.59 is required, as pointed out, to complete the building program we have in mind. Hence, not only this sum can be provided out of the possible margin of income over current expenses, but there will remain a surplus of $969,439.52, which is almost enough to liquidate the bonds now outstanding to the amount of $507,500 and also the bonds aggregating $520,168.06 to be issued to provide by 1926 the required new buildings. In a word, on the bases of the foregoing assumptions, Gary can not only finance within the period in question the proposed school system, but will at the end of the period be practically free of debt for grounds, buildings, and permanent equipment—this, moreover, on the basis of a local school tax rate not appreciably higher, when differences in methods of assessment are taken into account and both operation expense and capital outlay are considered, than the prevailing rate in our larger cities.

Admittedly, material change in any one of a half dozen factors—a more rapid increase in enrollment than is provided for, the possible need of an additional plant owing to the development of widely separated sections, a less rapid and less uniform growth in taxable wealth, higher current operation cost, local opposition to liberal school taxes, and so on—may upset these calculations. Nevertheless, when the future is projected on the basis of known facts, it is clearly evident that Gary is not launched upon a financially impossible educational enterprise.

APPENDIX

CONTENTS

THE PUBLICATIONS OF THE GENERAL EDUCATION BOARD

REPORTS:

THE GENERAL EDUCATION BOARD: AN ACCOUNT OF ITS ACTIVITIES, 1902-1914. 254 PAGES.

REPORT OF THE SECRETARY OF THE GENERAL EDUCATION BOARD, 1914-1915. 82 PAGES.

REPORT OF THE SECRETARY OF THE GENERAL EDUCATION BOARD, 1915-1916. 86 PAGES.

REPORT OF THE SECRETARY OF THE GENERAL EDUCATION BOARD, 1916-1917. 87 PAGES.

STUDIES:

PUBLIC EDUCATION IN MARYLAND, BY ABRAHAM FLEXNER AND FRANK P. BACHMAN. 2ND EDITION. 176 PAGES, WITH APPENDIX.

THE JUNIOR HIGH SCHOOL, BY THOMAS H. BRIGGS.*

COLLEGE AND UNIVERSITY FINANCE, BY TREVOR ARNETT.*

OCCASIONAL PAPERS:

1. THE COUNTRY SCHOOL OF TO-MORROW, BY FREDERICK T. GATES. 15 PAGES.
2. CHANGES NEEDED IN AMERICAN SECONDARY EDUCATION, BY CHARLES W. ELIOT. 29 PAGES.
3. A MODERN SCHOOL, BY ABRAHAM FLEXNER. 23 PAGES.
4. THE FUNCTION AND NEEDS OF SCHOOLS OF EDUCATION IN UNIVERSITIES AND COLLEGES, BY EDWIN A. ALDERMAN. 31 PAGES, WITH APPENDIX.
5. LATIN AND THE A. B. DEGREE, BY CHARLES W. ELIOT. 21 PAGES, WITH APPENDIX.
6. THE WORTH OF ANCIENT LITERATURE TO THE MODERN WORLD, BY VISCOUNT BRYCE. 20 PAGES.

* In Preparation.

The REPORTS issued by the Board are official accounts of its activities and expenditures. The STUDIES represent work in the field of educational investigation and research which the Board has made possible by appropriations defraying all or part of the expense involved. The OCCASIONAL PAPERS are essays on matters of current educational discussion, presenting topics of immediate interest from various points of view. In issuing the STUDIES and OCCASIONAL PAPERS, the Board acts simply as publisher, assuming no responsibility for the opinions of the authors.

The publications of the Board may be obtained on request

TABLE F

Inventory of Land, Buildi

(Estimated—as of Jul

PLANT	TOTAL
Total	$1,016,319.81
Administration Plant[1]	3,440.73
Emerson School	388,886.07
Froebel School	433,517.55
Jefferson School	98,309.99
Beveridge School	22,614.90
Tolleston School	13,294.05
Glen Park School	30,595.64
24th Ave. School	5,009.25
West Gary School	1,296.23
Clarke School	5,930.73
Ambridge School	3,424.67
School Farm	10,000.00

[1]General offices, barns, and storehouses.

TABLE I

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School Farm	10,000.00

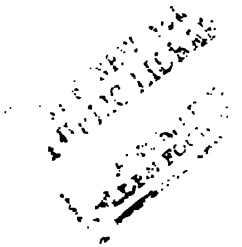
[1]General offices, barns, and storehouses.

TABLE G

STATEMENT OF BONDS OUTSTANDING

(as of July 31, 1916)

SERIES	DATE OF ISSUE	AMOUNT OF ISSUE	DUE
	Issued by School City of Gary		
1	Aug. 1, 1908	$ 37,500	Aug. 1, 1917
2	Nov. 1, 1908	50,000	Jan. 1, 1917
3	Apr. 24, 1909	51,000	Jan. 1, 1919
4	Oct. 15, 1909	50,000	July 1, 1919
5	Feb. 15, 1911	60,000	July 1, 1920
6	Oct. 2, 1911	50,000	July 1, 1921
7	Feb. 17, 1912	75,000	Feb. 1, 1922
8	Nov. 1, 1913	60,000	Nov. 1, 1933
9	Nov. 2, 1914	23,000	Nov. 1, 1924
10	Dec. 1, 1915	50,000	Dec. 1, 1935
	Total Issued by School City	$506,500	
	Inherited Obligation from Calumet Township (Glen Park)	1,000	July 31, 1916
	Total	$507,500	



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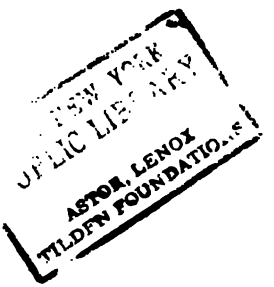
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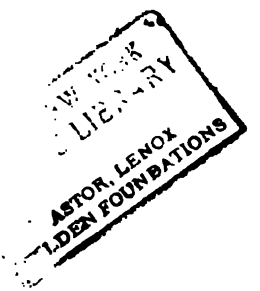
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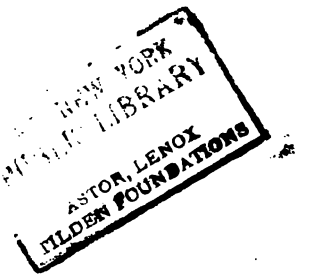
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